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ABSTRACT

The papers in this proceedings describe similarities and differences in state libraries and examine the state library role in local, regional, and national network development and in the dissemination of information to various client segments. The papers are: (1) "The Commonalities of State Library Agencies" (Barrat Wilkins); (2) "Research/Special Library Model" (Barbara F. Weaver); (3) "Department of Public Instruction Model" (J. Maurice Travillian); (4) "Independent Agency Model" (Richard G. Akeroyd, Jr.); (5) "Executive Branch Model" (Jane Williams); (6) "Statewide Telecommunications Development" (Sara A. Parker); (7) "Statewide Database Development" (James B. Johnson, Jr.); (8) "Multitype Library Network Development" (Jean E. Wilkins); (9) "State Libraries and OCLC" (Kate Nevins); (10) "State Libraries and Regional Bibliographic Networks" (Bonnie Juergens); (11) "State Libraries and the Distribution of State Government Databases" (Rodney G. Wagner); (12) "State Libraries and Public Information Policy/Legislation" (Richard M. Cheski); (13) "State Libraries and Service to Private Citizens" (Nancy L. Zussy); (14) "State Libraries and Service to Corporate Sector/Local Governments" (Howard F. McGinn); and (15) "State Libraries and Service to Educational Institutions" (John C. Tyson). Draft recommendations for further study and action are included. A conference background paper, report of business sessions, speaker biographies, meeting agenda, and a paper entitled "The Challenge Offered by the National Research and Education Network" (Clifford A. Lynch) are appended. (KRN)

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- No. 11 Maruyama, Lenore S. *The Library of Congress Network Advisory Committee: Its First Decade*. (Washington: Library of Congress, 1985). 50 p. $7.50.

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CONTENTS

FOREWORD, Henriette D. Avram 1

ATTENDEES 2

INTRODUCTION, Howard F. McGinn 5

PROGRAM SESSION 7

SIMILARITIES & DISSIMILARITIES OF STATE LIBRARY AGENCIES

THE COMMONALITIES OF STATE LIBRARY AGENCIES, Barratt Wilkins 7

RESEARCH/SPECIAL LIBRARY MODEL, Barbara F. Weaver 9

DEPARTMENT OF PUBLIC INSTRUCTION MODEL, J. Maurice Travillian 13

INDEPENDENT AGENCY MODEL, Richard G. Akeroyd, Jr. 15

EXECUTIVE BRANCH AGENCY MODEL, Jane Williams 19

STATE LIBRARY ROLE IN LOCAL, REGIONAL, AND NATIONAL NETWORK DEVELOPMENT, PART 1

STATEWIDE TELECOMMUNICATIONS DEVELOPMENT, Sara A. Parker 25

STATEWIDE DATABASE DEVELOPMENT, James B. Johnson, Jr. 29

MULTITYPE LIBRARY NETWORK DEVELOPMENT, Jean E. Wilkins 33

STATE LIBRARY ROLE IN LOCAL, REGIONAL, AND NATIONAL NETWORK DEVELOPMENT, PART 2

STATE LIBRARIES AND OCLC, Kate Nevins 35

STATE LIBRARIES AND REGIONAL BIBLIOGRAPHIC NETWORKS, Bonnie Juergens . . 39

STATE LIBRARIES AND THE DISTRIBUTION OF STATE GOVERNMENT DATABASES, Rodney G. Wagner 43

INFORMATION DISSEMINATION

STATE LIBRARIES AND PUBLIC INFORMATION POLICY/LEGISLATION, Richard M. Cheski 47

STATE LIBRARIES AND SERVICE TO PRIVATE CITIZENS, Nancy L. Zussy 53

STATE LIBRARIES AND SERVICE TO CORPORATE SECTOR/LOCAL GOVERNMENTS, Howard F. McGinn 59

STATE LIBRARIES AND SERVICE TO EDUCATIONAL INSTITUTIONS, John C. Tyson 63

DRAFT RECOMMENDATIONS 67

APPENDIXES

A: BACKGROUND PAPER--STATE LIBRARY AGENCIES AND THE NATIONAL INFORMATION NETWORK, Howard F. McGinn 71

B: LETTER TO THE NATIONAL LIBRARIANS 75

C: REPORT OF THE BUSINESS SESSIONS, Henriette D. Avram 77

D: BIOGRAPHIES OF THE SPEAKERS 81

E: MEETING AGENDA 83

F: THE CHALLENGE OF THE NATIONAL RESEARCH AND EDUCATION NETWORK, Clifford A. Lynch 87

FOREWORD

Henriette D. Avram
Chair Emerita, Network Advisory Committee

In 1987, following approximately a two-year concentration on the evolving national network, the Library of Congress (LC) Network Advisory Committee (NAC) published a NAC library networking common vision statement and an action agenda of twenty-nine tasks identified as worth pursuing by either NAC itself or other relevant organizations. One of these tasks called for an investigation of state networking developments and the role of state agencies in fostering cooperation among libraries.

At the conclusion of the spring 1991 meeting, concerned with the impact of shared local systems on the national network, there was agreement among NAC members that a natural follow up topic would be the task identified above. Consequently, the role of state agencies was set as the topic for the spring meeting of 1992. It was also decided that the Chief Officers of State Library Agencies (COSLA) should be invited to join with NAC on the planning and implementation of this meeting.

Howard F. McGinn, the COSLA representative on NAC was asked to be chair of the Program Planning Committee and was supported by Joseph F. Shubert, NAC's American Library Association representative. The planning of this meeting was difficult because of my and Sigrid Harriman's (LC NAC chair and secretariat respectively) retirement from LC in January 1992 without the continuity for the NAC responsibility having been established. The problem was immediately recognized and solved by LC through contracts and LC support resources. I served as NAC's chair emerita through the April 1992 meeting.

I gratefully acknowledge all the effort put into this meeting by Howard McGinn who virtually was a one man planning committee as well as a speaker. To William L. Starck, LC's resource person, my thanks for his support throughout. Everything was new to Bill, but he never faltered. My appreciation also goes to those COSLA representatives who prepared and presented their papers and to Clifford Lynch who responded to my request at the last moment to update the attendees on the latest NREN (National Research and Education Network) developments (see Appendix F).

This document has been issued within the Network Planning Paper series. It should be noted that the opinions expressed in these proceedings are those of the individual speakers and do not necessarily reflect the opinions of their organizations.

September 30, 1992

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NAC Organizations	Representatives
American Association of Law Libraries	Janice Snyder Anderson
American Library Association	Joseph F. Shubert Carol C. Henderson
American Society for Information Science	Ward Shaw
AMIGOS Bibliographic Council, Inc.	Bonnie Juergens
Association for Library and Information Science Education	Toni Carbo Bearman
Association of Research Libraries	Prue Adler
Bibliographical Center for Research	David H. Brunell
CAPCON Library Network	Dennis Reynolds
Chief Officers of State Library Agencies	Howard F. McGinn
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EDUCOM Networking and Telecommunications Task Force	Ronald L. Larsen
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Connecticut State Library	Richard G. Akeroyd, Jr.
Delaware Division of Libraries	Charlesa Lowell
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Illinois State Library	Jean E. Wilkins
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South Dakota State Library	Jane B. Kolbe
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Washington State Library	Nancy L. Zussy Mary Y. Moore David G. Remington

INTRODUCTION

Howard F. McGinn
State Librarian,
North Carolina Department of Cultural Resources
Division of State Library

In 1990 Henriette D. Avram and the Library of Congress Network Advisory Committee (NAC) initiated a three stage study of the effects on the development of a national bibliographic database by local libraries, the three national libraries, and state libraries. The NAC meeting in April 1991 explored the impact of local systems on the national networking environment; the December 1991 NAC meeting examined the role of the national libraries in the evolving national network. The completion of the tripartite examination of the effect of local, state, and national libraries was accomplished at the NAC meeting in Washington, D.C. on April 27-29, 1992. At this meeting the role of state library agencies in the evolving national information network was examined. The meeting was sponsored by both the Network Advisory Committee and the Chief Officers of State Library Agencies (COSLA).

State library agencies are mysterious entities for most in the library profession. Few, if any librarians, enter librarianship with the career goal of working in a state library agency. Part of the mystery of the state library agency may be attributed to the fact that there are few state libraries that are similar. Some state libraries are very old. The State Library of North Carolina, for example, celebrated the 180th year of its founding in 1992; other state libraries were established in the mid-20th century to direct the expenditure of federal funds in their states. The size of state library agencies varies widely. The state libraries of New York and California are massive research libraries that serve the full range of information needs. Other states, such as Maryland and Colorado, do not actually maintain libraries. They contract with major urban public libraries to provide library services. Most state libraries are special libraries whose main function is to serve the information needs of state government agencies.

Since the passage of the Library Services Act, however, the legislatively mandated duties of most state library agencies have expanded to meet the needs of an information dependent society. Most state libraries will maintain a staff of professional librarian consultants to assist local libraries of all types, especially public libraries, develop services. Many agencies are responsible for the development of statewide electronic networking systems and/or interlibrary loan activities. Other services provided by state library agencies include the operation of state government document depository systems, operation of the state archives and records center, the provision of genealogical services, reference services to local governments and businesses, and general statewide multi-type library development. All are responsible for the management of Library Services and Construction Act funding within their state and, as such, significantly determine the development of networking programs on a statewide basis. State library agencies operate under a wide variety of state government administrative structures. Some are independent agencies, some are branches of the state's legislature, many are part of the department of public instruction or department of higher education, and some are divisions of the state's department of cultural resources or department of state.

This disparity of administrative reporting, of activities, of legislatively mandated duties, of structure makes generalizations impossible and demands a better understanding of the complex institutional world of state library agency operations. The meeting agenda, therefore, was designed to describe the similarities and differences among state library agencies, to discuss the state library role in local, regional, and national network development, and to examine the state library function in the

dissemination of information to various client segments.

After introductions by Henriette D. Avram, Chair of the Network Advisory Committee and Howard F. McGinn, State Librarian of North Carolina and Program Chair for the meeting, Clifford A. Lynch of the University of California at Berkeley discussed the development, current status, and future direction of the National Research and Education Network (NREN) in session 1. In session 2 Barratt Wilkins, State Librarian of Florida, Barbara Weaver, State Librarian of Rhode Island, J. Maurice Travillian, State Librarian of Maryland, Richard G. Akeroyd, Jr., State Librarian of Connecticut, and Jane Williams, Research Associate for the National Commission on Libraries and Information Sciences and former State Librarian of North Carolina, presented papers discussing the similarities and dissimilarities of state library agencies. In session 3 and 4, Sara A. Parker, State Librarian of Pennsylvania, James B. Johnson, State Librarian of South Carolina, Jean E. Wilkins, Manager of ILLNET/OCLC services for the Illinois State Library, Kate Nevins, Vice President, Corporate Relations at OCLC, Bonnie Juergens, Executive Director of AMIGOS, and Rod Wagner, State Librarian of Nebraska discussed the state library role in the development of local, regional, and national networks. In the final program session, Richard M. Cheski, State Librarian of Ohio, Nancy L. Zussy, State Librarian of Washington, John C. Tyson, State Librarian of Virginia, and Howard F. McGinn discussed the role of the state library in the establishment of information policy and legislation, and the state library's provision of services to private citizens, businesses, local governments, and educational institutions.

This joint NAC/COSLA meeting was important because it enabled the members of NAC to acquire a better understanding of the role state library agencies play in their states, and the wide variety of state library agency operations, organizations, and types. Most importantly the meeting provided an opportunity to examine state library agency roles in the setting of networking policy, and the ability of state libraries to control the direction of state level network development through their LSCA programs.

THE COMMONALITIES OF STATE LIBRARY AGENCIES

Barratt Wilkins
State Librarian, State Library of Florida

I have been assigned one of the easiest tasks this morning, which is to speak about the commonalities of state libraries. There are few! Before the passage of the federal Library Services and Construction Act (LSCA) in 1956, I would have said there were none. By commonalities, I mean some characteristics that can be found in all fifty state library agencies.

The first characteristic is that each state library agency has a chief officer position, variously called state librarian, commissioner, assistant superintendent, director, etc. (I have also heard grand pooh-bah, czar, etc.)

The second characteristic is that each state has a governmental unit designated by the state's attorney general as the state library administrative agency. This title is necessary for a state to qualify to administer the Library Services and Construction Act. Some states have state libraries that are not the state library administrative agency. Massachusetts is an example where the Massachusetts State Library is not the state library administrative agency. Instead, the Massachusetts Board of Library Commissioners holds the designation.

Two major commonalities exist: each state has a state library administrative agency that administers LSCA, and each designated agency has a statutory responsibility for statewide library development, particularly in the areas of public libraries, and increasingly in multi-type library environments. It is with these two commonalities that state libraries have had influence in changing and developing library services.

By administering the federally-funded, but state-based Library Services and Construction Act, the state libraries provide access to the largest amount of discretionary funds for libraries in existence. While the expenditure of LSCA dollars must meet the purposes of the act and be based on state-drawn long-range plans for library services, there is still considerable latitude in the use of these funds. Approximately $120 million annually is available to the states for Title I-Public Library Development; Title II-Public Library Construction, and Title III-Interlibrary Cooperation. As LSCA is distributed on a population formula, the amounts received vary widely among the states.

Indeed, administering LSCA has caused some commonalities among the states. For example, because of LSCA Title III, all state library agencies have some responsibility for coordinating resource sharing among all types of libraries and in developing state networks. LSCA has meant that all state libraries have some responsibility for serving the residents of state health and correctional institutions, and have some responsibility for serving the blind and physically handicapped. LSCA Title II has also meant that all state libraries have a role in public library construction, remodelling, or renovation.

But, it is with LSCA Title I funds, coupled with the statutory responsibility for library development, that state libraries have made the most impact on the access of our citizens to public library services. These federal dollars have encouraged the states to appropriate over $350 million annually in state dollars to further develop public libraries with inadequate services; to develop statewide adult literacy programs; to strengthen statewide library services; and to strengthen major urban resource

libraries and metropolitan library services. It is important to note that only 4.5 percent of LSCA funds are used by the states to administer the program.

A few other commonalities of note include:

- All state library agencies collect standard statistical data from public libraries which is published annually by the National Center for Education Statistics

- All state library agencies make recommendations to the state and federal governments on legislation and programs relating to library services

- All state library agencies live in political worlds working with elected and appointed officials at the local, state, and national levels. There are individuals in all state libraries that must communicate effectively

Finally, state library agencies respond and/or coordinate the response of local libraries to critical national issues, such as: the President's and governor's education goals; the White House Conference on Library and Information Services; and adult literacy.

And that is where the commonalities end. It leaves more time for my colleagues to discuss the rich and varied spectrum of activities of state libraries.

RESEARCH/SPECIAL LIBRARY MODEL

Barbara F. Weaver
Director, Rhode Island Department of State Library Services

Historically, the earliest state libraries were established to serve the state legislatures as their own information providers. In New Jersey, for example, the state legislature passed a law in 1796 authorizing an appropriation for "a shelf of books and a bookcase." This became the state law library, the state government reference library, and eventually the current state library which has responsibility for reference and information services to the executive, legislative, and judicial branches of state government. The library also is responsible for backup reference services to all residents of the state, both directly and indirectly through libraries of all types.

One of the criteria for a major research library has been the size of the collection. All the state libraries having the research library function maintain extensive collections, with those in the larger states (California, New York, Illinois, and Michigan, for example) running into the millions of volumes of books, periodicals, and microforms, to say nothing of the database access of these libraries. Many of us also are deeply involved with the U.S. Newspaper Project funded by the National Endowment for the Humanities, which is helping to maintain and encourage access to the information in newspaper collections all over the country.

The most recent edition of *The State Library Agencies* (1989) reports forty of the state library agencies have responsibility for information services to state government; thirty-two offer a legislative reference service, and thirteen have responsibility for the state archives and records management programs. As a special library the New Jersey State Library administers the state law library which is the largest law collection in the state that is open to the public. It also has an extensive collection of materials in all formats including access to on-line and CD-ROM databases in all subjects that could possibly be of concern to any state government department, including education, environmental protection, health, human services, and personnel. It also circulates materials from all collections to state employees and to the general public. The heaviest collection emphasis in New Jersey, as in many other states, is in state and U.S. government documents, state and local history and genealogy, law, patents, and foundations and grantsmanship.

The primary clientele for the state library as a research library are the policy makers in the state: the governor, members of the legislature, and the heads of executive branch departments. In a few states (Arizona and Michigan, for example) the state librarian is an employee of the legislature, in which case the legislature itself becomes the primary clientele; in most other states the state library is part of the executive branch. Like other research/special libraries, the focus is on provision of up-to-date materials on a timely basis. Because of the importance of time constraints in supplying information to government officials, state libraries have endeavored to use electronic information means as much as their budgets will allow.

Each state library has developed specialized resources and services for its own state in addition to the standard functions described above. I will mention only a few of them. I would also caution that the states I use as examples are by no means the only ones who do these things; they are merely examples.

- Colorado: Department of Education Resource Center, with information for decision-makers in all areas of current education issues

- Connecticut: a toll-free backup telephone reference service for all types of libraries

- Indiana: responsible for maintaining the state data center, with both U.S. and state census information

- Montana: Natural Resources Information System, including a Water Information System, Geographic Information System, and the Montana Natural Heritage Program which "inventories significant elements of the state's natural features that are rare, exemplary or unique"

- Oregon: designated in 1985 by U.S. Department of Commerce as a patent depository library

- California: maintains a Public Policy Research Bureau, which it is in the process of taking over from the legislature. This new service will allow access to research facilities at the University of California and other locations. The Bureau will develop issue briefs similar to those done by the Congressional Research Service, and will make these available by dialup. Some early issues planned for research are women's health issues and women's equity issues.

  The California State Library also operates and maintains the Sutro Library in San Francisco, which houses many special collections, including ancient Hebrew manuscripts and scrolls, the history of books and printing, Mexican history from the Conquest to 1900, and voyages and travels from Columbus to 1900

- New York: the New York State Library is a member of the Research Libraries Group (RLG), and maintains its holdings of manuscripts and rare books on the Research Libraries Information Network (RLIN). New York has also made cooperative agreements with other state government agencies, one example of which is that the Department of Economic Development pays the library to maintain a database of information useful for small businesses. Last year this investment of only something like $9,000 generated nearly $21 million worth of new business in the state

  New York also has participated in a major fundraising and publishing project to translate and make available early Dutch colonial records from the 17th century

- New Jersey: the state library was funded by the Department of Health for several years to maintain all reference and research library functions for the department. This funding allowed for a full-time reference

librarian, and the library subscribed to all the appropriate medical databases to respond to specific questions. In addition, the librarian handled all subscriptions to medical journals, routed them as needed, and offered SDI services to members of the Department of Health staff

Just as other special libraries tailor their services to their corporate clientele, so do state libraries tailor their services. There are enormous resources--both in information and in staff expertise--in our state library agencies. It is essential that we are part of the national and international communications networks that will allow people in any geographic location or educational endeavor to have access to this wealth of resources.

DEPARTMENT OF PUBLIC INSTRUCTION MODEL

J. Maurice Travillian
Assistant State Superintendent for Libraries
Maryland State Department of Education

Approximately one third of all state library agencies reside with the state education bureaucracy for their state so this model is one of the more common models.

In Maryland, the state library is a division within the State Department of Education known officially as the Division of Library Development and Services. It is assigned responsibility for the development of public library services, school library media programs, the coordination of the state library network and other resource sharing efforts, and the operation of the library for the blind and physically handicapped.

Unlike most states, Maryland does not have a state agency assigned the responsibility for providing library and information services to state government agencies. Each state agency or department is essentially on its own in meeting its information requirements. Apparently the decision was made early in our history that state employees would do less damage if the information available to them was kept to the barest minimum.

The state library agency was included in education because public libraries were considered to be educational agencies and were included under the education section of the state code. The public library aid formula is identified under the code and the state budget as an education aid formula. This saved $17 million in state money for libraries this year when the attorney general ruled that the state constitution prohibited the governor from reducing any formula aid to education program and that included the aid to public libraries.

There are some significant advantages to being a part of the State Department of Education. The annual budget for our agency is approximately $39 million. We seldom have to answer many difficult questions at the legislative budget hearings because that $39 million is a very small part of the department's $1 billion budget. The budget committees generally have much bigger fish to fry than our $39 million in the fertile ocean of the department's $1 billion.

We are also enriched by our close contacts with other divisions in the department. For example, the Business Services Office provides major support in developing our annual budget, maintaining accounting records, procuring goods and services, and reporting to state and federal authorities. The Division of Certification handles the process of certification of public librarians and the Office of Management Information provides data processing and technical assistance for our automation efforts in the state and in our internal operations.

Are there accompanying disadvantages? Certainly. The department is in business in four different activities. It is in the public education business, the corrections education business, the library and resource sharing business, and the rehabilitation services business. Although the last three of these businesses make up 60 percent of the employees of the department, everyone at the highest administrative levels in the department rose through the field of public education. The perception of the public is that

the department is primarily about public education and this is also the perception of the State Board of Education and of the superintendent.

Because the primary mission of the department is seen as improving public education, those of us who serve the department's other missions for different customers often find ourselves at a disadvantage in competing for limited resources.

We have recently experienced some attempts at reorganization that would have removed staff and resources from our division for purposes more closely related to the "primary" mission of the department. We have also had to deal with proposals to remove all functions from the department that did not relate directly to the public education function. Neither of these efforts have yet met with success but they have raised the question of relocating the library function in state government in the minds of the library community, the state legislative leaders, and various members of the executive branch of government.

Another disadvantage of being located within a large agency such as the department is the extent to which your actions are limited by the policies, procedures, and corporate culture of the larger agency. Much of the flexibility and entrepreneurial spirit that could be available in an agency with a staff of 35 is lost when you become a part of a staff of 1,400. As some organizational guru, whose name escapes me at the moment, once observed: any organization with more than 600 employees no longer requires any contact with the outside world as all the employee's time can easily be occupied with internal memos.

It is my preference for the library function to remain in the Department of Education in Maryland. I believe the benefits that are derived from our day-to-day relationship with other divisions and the similarities and congruency of our mission with that of the public education function is sufficient to offset the feeling we sometimes have of being an unwanted stepchild in the education family. We are too small to prosper as an independent agency and it is very unlikely that we could bring together the related functions such as archives, legislative reference, law library, and cultural programs that many state library agencies have used to achieve critical mass to survive in the harsh world of autonomous state agencies.

In other states, state library agencies exist in their departments of education under different circumstances than found in Maryland. In most cases they operate libraries that provide services to state employees and support services for public libraries. Their success often depends on where they are located in the structure of the department and how much of their function is defined by state law instead of being left to the kindness and generosity of the department officials.

INDEPENDENT AGENCY MODEL

Richard G. Akeroyd, Jr.
State Librarian, Connecticut State Library

My assignment this morning is to discuss the model of the independent state library agency. I will do this by attempting to identify some characteristics, suggesting a definition, giving a specific illustration based upon a single state library agency, and noting some implications of this model for statewide network planning and development.

OVERVIEW

The one thing that you should have learned from all of the presentations this morning is that the single thing which state library agencies have in common is the fact that they are so much different from each other!

This "commonality" persists even among the twenty-four of us which can be called "independent."

Officially, we are called by many different names: the state library, the department of libraries and archives, the board of library commissioners, to cite just three. Unofficially, however, we are often called a wide variety of very colorful names by our various constituents!

We report to different people: the governor or the legislature, usually via appropriate staff and/or committees.

We all operate under a combination of statutory authority and legislative mandate to carry out a wide variety of programs and services, some of which are not commonly shared among all of us; for example, archival, records management, and museum functions. A few of us also administer large research libraries. Perhaps the only programs that are the unique responsibility of all twenty-four--indeed, all fifty--of us are the statewide library development function and the administration of the Library Services and Construction Act (LSCA) program.

Our governance structures differ dramatically in terms of our varying degrees of authority and/or autonomy in relationship to our appointing authorities. Most of us are governed by a board or commission which is appointed by the governor or the legislature, or both. At least one of us reports directly to a legislative committee. This of course means that we are all more or less directly affected by the political process. At the same time, however, it also means that we have direct access to that process and its major players.

As state librarians, almost all of us are hired by our boards following the usual recruitment processes. All of us occupy "unclassified" positions within established state personnel structures. This generally means that we serve at the pleasure of those boards. One of us is a direct appointee of the governor, which carries with it all of the status and uncertainty of that type of appointment.

Let me summarize these various differences with the following general definition. The independent state library agency is one that:

- operates under clearly defined statutory authority;
- is governed by a board or commission which is appointed by the governor and/or the legislature;
- establishes, and is ultimately responsible for, its own policies and operating procedures;
- functions independently of other departments and agencies within state government; and
- reports directly to its appointing authority.

If we had time on this agenda, I would suggest another test of the differences among us. That would be to determine the amount of agreement among my state librarian colleagues here regarding the above characteristics and definition. I expect we would have a lively discussion!

CONNECTICUT STATE LIBRARY AS A SPECIFIC ILLUSTRATION

In an attempt to specifically illustrate some of these points, I would like to briefly describe in detail one independent state library agency. I will focus on the Connecticut State Library, since that is the one I know best--and the one which will get me in the least amount of trouble, if I say something wrong or disagreeable!

The Connecticut State Library was founded in 1854 as a law library to meet the needs of state government. In 1855 it acquired the Connecticut archives. In 1910 it moved to its present location and also acquired responsibility for the Museum of Connecticut History. Soon after that it began to develop what we now know as our public records management program. In 1965, as the result of a major government reorganization, it was assigned responsibility for statewide library planning and development.

Today the Connecticut State Library is a complex organization with six major statutory responsibilities:

1. to manage and preserve the state's archives;
2. to administer the state's public records program--this includes very powerful regulatory authority;
3. to operate the Connecticut Museum of History and Heritage;
4. to administer federal and state grant programs available to libraries;
5. to provide a variety of statewide planning, coordinating, and support services for the state's library community, including networking and statewide database development; and
6. to provide direct library and information services to state government and the general public.

The library's research collections now number some 4,000,000 items, including books; newspapers; periodicals; local, state, and federal documents; microforms; and various forms of non-print media. The state archives holds 30,000 cubic feet of manuscripts and historical records, and there are some 50,000 artifacts in the museum's collections.

The library provides direct services to over 500,000 individuals annually. In addition, it provides consulting services, administers grants, and conducts training for hundreds of state agencies, town governments, and libraries and library organizations throughout the state. The library also manages the

federal documents depository program for Connecticut and Rhode Island, and coordinates a network of seventeen state document depository libraries.

It provides these services from five physical facilities across the state, including the main research library, a records storage center, an interlibrary loan center, a library for the blind and physically handicapped, and two library service centers.

The library's operating budget for FY92 is $9.6 million. In addition, the library administers $2 million annually in public library construction grants.

The library is governed by a twelve-member board which includes the chief justice of the state supreme court; the chief court administrator; the commissioner of education; five members appointed by the governor; and four members appointed by the majority and the minority leadership of the state legislature. Potentially, this is a very politically influential group of individuals!

The state library board is established by, and its authority, powers, and responsibilities are defined in *The General Statutes of Connecticut*, chapter 188, which is entitled "State Library." These statutes clearly define the programmatic responsibilities outlined previously. In addition, chapters 188, 189, and 190 define the state library's authority and relationships to other types of libraries and the state's multitype library cooperative organizations.

One additional chapter of the statutes, chapter 191, is known as the "Interstate Library Compact." A similar chapter appears in the statutes of each of the New England states. This is a very powerful statute which authorizes the establishment of interstate library districts and services. It also authorizes funding by the participant states on a proportionate basis. Approval for any district or project formed must be sought by the attorney general of each participant state.

(Note: it was under the provisions of this compact that the New England Document Conservation Center, now the Northeast Document Conservation Center, was established. This compact has exciting potential for network planning and development in New England.)

Under the board's direction, the library reports annually to the governor, and biennially to the legislature. The library prepares and submits its budget directly to the governor's chief budget officer, and defends its budget directly with that office and with the legislature. The library also maintains its own legislative liaison to the governor's office and to appropriate legislative committees. The board chair and the state librarian make direct testimony to the legislature on all budget matters and other legislation affecting its programs and services.

IMPLICATIONS FOR STATEWIDE NETWORK PLANNING AND DEVELOPMENT

In Connecticut's statutes, there is no other library or library related agency that has the type of authority or mandate that is accorded to the state library for planning and development of statewide library services or networks.

Similar statewide planning and development authority exists for all fifty states for public and/or multitype library services. And, in at least fifteen other states there is direct statutory authority for the state library agency to plan, develop, and coordinate statewide information networks among all types of libraries.

In Connecticut, for example, our main thrusts toward network development are now occurring in the following areas:

- We have just announced a major planning effort to develop a fully functioning statewide information network by the year 2000--the Connecticut Library and Information Network (CONNLINET);
- We are continuing development of our statewide database and public access catalog--currently a CD-ROM product known as "REQUEST";
- We are continuing development of our statewide union list of serials on OCLC;
- We are initiating the implementation of a statewide OCLC/Group Access Capability (GAC) function to replace our current interlibrary loan system;
- We are initiating a program to coordinate Internet access for public libraries through a contract with the University of Connecticut.

Other examples of these include MAINECAT (Maine); the South Carolina Library Network; the New Hampshire Automated Information Systems Board; the North Carolina Information Network; NEBASE (Nebraska); the Connecticut Library and Information Network; and, until recently, the Western (originally, Washington) Library Network, which is now a private organization.

These are all operated by and under the authority of the state library agencies. They are supported by a mix of state, federal, and local funds, and they include participation by all types of libraries. Many are also participating in multi-state networks as well.

Clearly these examples are not all from states with "independent" state library agencies. Nevertheless, because of their independence from the priorities and operations of other state departments with broader or different primary missions, because of their direct access to appointing authorities, their ability to deal directly with their legislatures, and because of their broad statutory authority, it is equally clear that the independents are perhaps best positioned to more easily move forward with statewide network planning and development.

In Connecticut, for example, as state librarian, I have been designated in statute to serve on two key activities which have direct relevance to information network development in the state. These are statewide information policy development, and an oversight committee for the development of a state economic information system. As a representative of an independent agency, I have direct policy input to these activities rather than having to represent the perspectives and priorities of a commissioner or board of another perhaps larger agency or department.

I hope these brief comments have served to provide some additional insight and perspective into these very complex state government agencies known as state libraries, and to the valuable role which they can play and are playing in the development and expansion of improved library and information services through networked information environments.

EXECUTIVE BRANCH AGENCY MODEL

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I am pleased this morning to rejoin state library colleagues and to review for you what I think are very interesting organizational and service setups among the state library agencies fitting the executive branch agency model. This category is for the state libraries that are part of cabinet-level departments other than state departments of education or public instruction.

Actually, there is at least one state library in a department that combines education with other functions. The South Dakota State Library is in the Department of Education and Cultural Affairs.

Another variation in this category of executive branch agency model is to have the state library in a department that is strictly for cultural affairs, cultural resources, or cultural services. Four states that have this organizational setup are Iowa, Department of Cultural Affairs; New Hampshire, Department of Cultural Affairs; New Mexico, Office of Cultural Affairs; and North Carolina, Department of Cultural Resources.

State libraries that are parts of these combined departments have some interesting siblings. For example, Iowa's Department of Cultural Affairs includes, along with the State Library, the State Historical Society, the Iowa Arts Council, Iowa Public Television, and Terrace Hill, the governor's mansion. By the way, the information about Iowa was confirmed over the phone for me by the Iowa State Library's marketing coordinator. Her job is a 2 1/2 year-old position. More than one state library has created this kind of job description and title.

Another example of being grouped with cultural concerns is provided by New Hampshire, where the Department of Cultural Affairs' divisions include the State Library, Historical Resources, and Arts. We find a similar situation for the New Mexico State Library, in the Office of Cultural Affairs, which also administers the state museums and the arts commission. In North Carolina, the Department of Cultural Resources has three divisions: the State Library, Archives and History, and the North Carolina Arts Council. It also has two affiliated organizations with their own governing boards: the North Carolina Museum of Art and the North Carolina Symphony.

Four state libraries are in the departments of state in Delaware, Florida, Illinois and Tennessee. In Illinois, the secretary of state is officially designated the state librarian; the professional librarian position is designated as the director of the Illinois State Library. The secretary of state's office in Illinois has twenty-one separate departments, ranging from Accounting Revenue, Administrative Hearings, Archives, Communications, Driver Services, Personnel, Police, Purchasing, and Securities, to, as noted, the state library.

Delaware's is an interesting situation. The Delaware State Library was part of the Department of Community Affairs until July 1991, when the department was disbanded. The state library became a division in the Department of State. Other concerns in that department are the Division of Historical and Cultural Affairs, the Division of Arts, the Delaware Commission of Veterans Affairs, and the Office of the State Banking Commission.

Utah provides a unique setting for a state library. Its Department of Community and Economic Development has an affiliated organization, the Utah Sports Foundation, and three regular components: Travel Development; Business and Economic Development; and Community Development. The Utah State Library is one of four divisions in Community Development. The others are Fine Arts, History, and Expositions.

There are significant and well-chosen words in the executive summary of the Utah State Library's portion of the Department of Community and Economic Development's business plan for fiscal year 1991-92. Here is the mission statement:

> The mission of the State Library Division is to foster improved public library service and interlibrary cooperation in the State of Utah. In partnership with government agencies and private groups, the State Library creates and maintains policies and programs designed to make libraries a vital, effective part of Utah's public life. Libraries support economic development by providing information to the business community, sustaining teaching and learning in Utah's educational institutions and enriching the lives of Utah residents.

This mission statement obviously reflects the mission and goals of its parent department. However, you will find other state libraries, even some within departments with cultural concerns, that are increasingly emphasizing the importance of libraries to local, statewide, and regional economic development.

Some of the state library agencies that are in combined departments, other than departments of education or public instruction, have found that their parent departments are smaller than most others in their state governments and that it can be easier to live, negotiate, and be visible in a smaller department. A negative aspect can occur when, if the state library is in a department with cultural and historical concerns, and those concerns have very vocal, powerful, and wealthy support groups, like museum associates, the library concerns can seem less important to the administrators of the parent departments.

Regardless of the name of the parent department, in most of these cases, of course, the state librarian reports to the cabinet secretary and may serve at the pleasure of the governor. The state library agency is likely to have a board or commission that advises the library and the cabinet secretary on the functions and operation of the state library agency. Additionally, that board or commission, or a separate committee or council, must be in place and authorized to advise the state library on the state's program for the federal Library Services and Construction Act (LSCA) funds.

For state libraries that are part of larger departments, boards or commissions come in all shapes and sizes. South Dakota's board, for instance, has eight members, all appointed by the governor. The board establishes policies for the South Dakota State Library. New Mexico has a five-member State Library Commission. The North Carolina State Library Commission, which advises the Secretary of Cultural Resources on matters relating to the operation and services of the state library, formerly consisted of gubernatorial appointees and ex officio members. In 1991 the statute was changed and the commission expanded to fifteen. The governor appoints eight members; the lieutenant governor, one; and the speaker of the House of Representatives, one. Two members are the president and president-elect of the North Carolina Library Association, and three members are appointed from the North Carolina Public Library Directors' Association. In Tennessee, the policy-making State Library and Archives

Management Board has five members, all ex officio: the secretary of state, the comptroller of the treasury, the state treasurer, the commissioner of education, and the commissioner of finance and administration.

Even where a state library is autonomous, it finds that an established avenue to the executive office is helpful. An example is Maine, where the State Library, Museum, Arts Commission, and Historic Preservation, all formerly under Education, are part of what is called a Maine State Cultural Affairs Council. The council has no policy authority over the now independent cultural agencies, but it serves as a forum for interagency cooperation and planning and as a link to the governor's office, which has a representative on the council.

Some of the state libraries that are part of larger departments in the executive branches of their state governments represent a product of some of the consolidation of formerly independent agencies into larger departments that took place around the country in the 1970s and 1980s. Examples are found in Iowa, New Hampshire, New Mexico and Utah. Twenty-five years ago their state libraries were independent agencies. They are now, as I have outlined to you, divisions in consolidated departments or offices.

After recounting some of these variations for you, I am reminded of the title of Barbara Weaver's article, "What on Earth Is a State Library?"[1] At this point one might also agree with Thomas Aud, author of "Quo Vadis, State Librarian?" in which he said, "The only factor state libraries seem to have in common is that they are located in capital cities."[2] You know, that is not even 100 percent true, since the Maryland state library agency is in Baltimore.

Reviewing the organizational settings of state libraries may not be as interesting as talking about the political aspects of these settings, but a review focused on organization is probably not as risky as one centered on the politics of the situations either. In any case, the state libraries that are not independent agencies do find themselves, of course, with more levels of authority to negotiate when it comes to submitting things like budget requests for ultimate legislative consideration. Having the visibility and power within a larger department to have the state library's needs and plans duly considered are often sizable challenges. Even assuming that those challenges are successfully met, there are still the executive branch policies of which the state library must be mindful.

For example, a governor may have declared that his or her administration's budget request to the legislature will contain no increases in, for instance, state aid to local communities. Such a declaration can put the state library in quite a quandary if the state library does not or cannot propose the increase that the public library constituency around the state has argued--and sometimes already argued directly to the legislature--must be forthcoming in grants from the state to localities.

Another perpetual quandary for any state library that has statewide development responsibilities, statewide services, and/or state aid to public libraries (and I think that does cover all state libraries), is

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[1]Barbara Weaver, "What on Earth Is a State Library? Issues in State Library Management," *Wilson Library Bulletin* 65 (October 1990): 28.

[2]Thomas L. Aud, "Quo Vadis, State Librarian?", *Library Journal* 113 (March 15, 1988): 29.

whether a request to increase the budget for any or all of those services outweighs what is needed for the maintenance or development of the state library itself. That can be a very political question.

These types of quandaries point up the truth of what Bob Clark of Oklahoma wrote: "Always I have wanted to be a politician, but ended up as a state librarian. There is no difference." He continued that he uses the term politics to mean "the array of intellectual and institutional diversities in which the SLAs [state library agencies] find themselves while dealing with public purposes."[3]

So far I have focused primarily on organizational distinctions among the state libraries and have talked a bit about politics. While it is interesting to look at the libraries' differences in organizational settings, such a focus can be misleading. As has already been pointed out, state libraries do share basic missions and services. There are actually several levels of services offered by most of the state libraries, and they have been grouped in the biennial surveys of state library agencies into administrative, developmental, public, technical, blind and physically handicapped, archives, museums, and book processing.

In hindsight it seems amazing that the edition of this survey that was published only ten years ago reported just one state library--Washington's--that operated a regional computerized bibliographic network.[4] That situation has changed radically, as you will hear later. Let me continue by outlining the general levels of services we now find that many state libraries provide.

1. The first level of service is operation as a complete special library or libraries, to serve their primary clientele. Most state libraries that are part of larger, cabinet-level departments other than education are also special libraries that serve state government, which is their primary clientele.

The foundation in this level of service, then, is the obvious; that is, to purchase, maintain, make available, and assist clients in using books, periodicals, newspapers, maps, documents, databases, and other materials. Some state libraries have, or are responsible for, large special collections. For example, Iowa's has a large medical collection, is a patent depository library, and is also responsible for the state's law library. Some state libraries are state data centers that concentrate on census materials.

It is often the case that state library agencies which are also special libraries are depositories for federal as well as state government documents, and in some situations they further coordinate a statewide state documents depository system. In several cases--Tennessee, for example--the state library and archives functions are in the same organizational unit.

Reports from the survey project on the state library agencies have traditionally itemized materials collections of the following types: audiovisual media, documents depository, law library, legislative reference, manuscripts, medical library, state history, agricultural collection, and a category for "other,"

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[3]Robert L. Clark, Jr., "Politics and the State Library Agency: A Personal Perspective," in *State Library Services and Issues: Facing Future Challenges*, ed. Charles R. McClure (Norwood, NJ: Ablex, 1986), p. 72.

[4]*The State Library Agencies: A Survey Project Report, 1981* (Chicago: Association of Specialized and Cooperative Library Agencies, 1983), p. 332.

which has been used to report items like collections in genealogy.[5] You can see from this very short overview that some state libraries are sizable special libraries. For example, the Illinois State Library reports collections totaling over five million items.

The next layer in this basic level of service, going beyond merely having the collections, is to actively distribute information and promote guidance in locating and using information from the library's collections. This layer implies marketing, assessment of job-related needs for information on the part of state government workers, and similar proactive stances that some state libraries have taken and are taking.

Some state libraries are by statute the official information centers for their state governments. Although the Missouri State Library is under the Coordinating Board for Higher Education and therefore not in the category of state agencies I'm reviewing, it is nevertheless noteworthy here that in late November 1991 the new Missouri State Information Center was dedicated. It houses the state library, the Wolfner Library for the Blind and Physically Handicapped, the state archives, the Missouri Records Management Center, and offices of the secretary of state.

As we are reminded by the operations housed in the new Missouri State Information Center, some state libraries also provide services to a primary clientele other than, or in addition to, state government; that is, blind and physically handicapped individuals throughout the state. We are aware of the National Library Service for the Blind and Physically Handicapped at the Library of Congress, providing materials and many support services to its network of regional libraries for the blind and physically handicapped across the country. The majority of those regional libraries around the country are operated by state libraries.

In an interesting extension of its library for the blind and physically handicapped, the Delaware State Library also runs a books-by-mail program for homebound individuals who can read regular paperback books. The Utah State Library, under contracts with other states, circulates braille materials throughout the western United States. It also administers, under a contract with the Library of Congress, one of three regional warehouses supporting the nation's libraries for the blind and physically handicapped.

2. The second level of service is statewide provision of materials from the state libraries' collections to support and back up local collections. Some state libraries have also traditionally developed special--and expensive--resource collections of 16mm films to loan throughout their states, primarily to citizens through public libraries. Some of these same libraries are now de-emphasizing or phasing out 16mm film collections and building collections of videocassettes, again for lending through the state.

This statewide provision of library materials often began with traveling libraries and, later, bookmobiles. The state libraries in Utah and New Mexico are among those that still operate bookmobiles. Under contract with county library service boards, the Utah State Library operates bookmobile services in twenty-four of Utah's twenty-nine counties. Four regional bookmobiles and a centralized books-by-mail collection at the State Library serve the citizens of New Mexico who have no access to a local library.

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[5]Ibid., p. 333.

This level of service has changed for some state libraries in recent years, so that a state library may not now be as concerned with developing resource collections or with lending materials from its own collections as it is with helping to make available the information in all the library collections in the state. Many state libraries, of course, continue to deal with both concerns. A case in point is the elaboration on the mission statement of the Illinois State Library, citing its responsibility for supporting and implementing library services linking more than 2,500 libraries of all types across the state.

One of the many ways to help make collections all over the state available is to promote reciprocal borrowing among library systems. An example is Iowa's Open Access program, which the state library has fostered. This statewide borrowers' program involves 548 libraries. I will come back in a moment to this point about state libraries' roles in increasing access to information, and we will also hear much more about it later in this meeting.

3. A third, also traditional, level of service is local library development--primarily development of public libraries--through consultant services and administration of state and federal grants. Barbara Weaver has maintained, "The only function that is common to all fifty state library agencies is public library development, or what used to be called public library extension services."[6] This local library development has in some cases extended to providing workshops and other continuing education activities for local library employees and public library trustees, to certification of public librarians and, perhaps more recently, to standards and accreditation programs for public libraries themselves.

Again, this level of service is in some states being transformed from its former focus on institutional development to that of development of and access to a wide variety of services. Part of the impetus to change from the institutional to the service focus has been due to the presence of LSCA Title III funds for cooperation and resource sharing among all types of libraries. These LSCA Title III monies are administered by state library agencies. Obviously, the wide availability of electronic technology and its use for so many information services have created many new opportunities for state libraries to move from an institutional to a service focus regarding local library development.

This shift has certainly been predicted and encouraged by many in the library and information services fields. Rod Swartz, who was the Washington State Librarian, and Nancy Zussy, who is the Washington State Librarian, have identified five roles for the "new" state library, the first of them being "promoter of public information instead of establisher of libraries." As such, "the state library agency can establish and maintain a strong leadership and coordination role in the area of free flow of information and maintenance of the rightful public sector role within the total information community, which should be the number one objective of any state library."[7]

I think little remains for me to say after that quotation. The state libraries have awesome challenges, but they are also doing some awesome things.

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[6]Weaver, p. 28.

[7]Roderick G. Swartz and Nancy L. Zussy, "Changing Environments, Emerging Roles," in *Library Services and Issues: Facing Future Challenges*, ed. Charles R. McClure (Norwood, NJ: Ablex, 1986), p. 264.

STATEWIDE TELECOMMUNICATIONS DEVELOPMENT

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Just as there are fifty state librarians, there are fifty state telecommunications officers. Almost all are located in departments of administration or general support services; whatever titles such may have. Often they report to the person who is in charge of the state computer systems, state data processing, or what is now usually called information services.

I would apologize to them and to you for this oversimplification and stereotyping. There appear to be three kinds of telecommunications officers. Based on the role they play, they could be identified as czars, orchestra conductors, or engineers. Telecommunications czars operate with full power--to the extent nothing happens in state telecommunications without their knowledge and approval. Orchestra conductors have a role which coordinates a variety of telecommunication systems. These officers see themselves as facilitator, persuaders, and providers of technical assistance to decentralized telecommunications for the state. Those I call engineers are the officials who preside over a narrowly focused operation, the control and management of state voice and data systems serving state government only.

For state libraries two imperatives drive the activity in telecommunications and forge the partnerships between state librarians and state telecommunications officers. These imperatives are reducing costs and providing expanded services.

In only one state is there a direct administrative link between the state librarian and the telecommunications director. This is Wyoming where, in the Department of Administration and Information, the state librarian and telecommunications director are peer colleagues.

Three states appear to have expanded roles in telecommunications beyond what is usual for state libraries. In the State of Washington, where during the years it operated under the state library, the Washington Library Network, now the Western Library Network (WLN), provided telecommunications on private leased lines for delivery of WLN services. To ensure network reliability, participating states and individual libraries signed over telecommunications rights to the Washington State Library Commission. Wisconsin and Pennsylvania have distance learning assigned to the state librarian. In these states, the state librarians will be searching for enough broadband width to transmit a wide variety of distance learning offerings, working toward fully interactive, real-time systems.

Here is a taxonomy for viewing state telecommunications activities. It is based on knowledge of approximately half of the states. The remaining states could be placed within such a classification.

First are those states where the state provides a single telecommunications system. This was originally voice analog lines and now has expanded to data transmission. Maryland and Louisiana have recently included the public libraries of the state in the statewide contracts for the provision of regular telephone (voice) services. In both instances there has been a reduction of telephone costs to local public libraries by approximately half.

What is important in states operating single telecommunications systems is that the state library securing access to the system on behalf of local libraries is often a policy breakthrough. Local governments and other public use may then follow.

Hawaii is an example of a single state network to which the state library has arranged library access. The Hawaii system is an information gateway system which includes terminals for users in every library. The information gateway system is compartmentalized. The public is able to use some parts, other parts are reserved for individual state agencies and state agency operations are secured from unauthorized access. The public library system was the first provider on the state network. It is the most heavily used part of the network. The university library system was second on the network and enjoys heavy use. In addition to the catalog, the public library provides user access to local newspaper indexes and the General Periodicals Index. The university library system provides user access to Carl UNCOVER and to ERIC. An example of what other state agencies provide to the public include the online state statistical abstract and the Trust Territories Archives.

A second classification is those states which operate dual telecommunication systems. In some instances, the duality is different. Two subdivisions are possible. In pattern A, the state operates one system for state government and a second system for the academic institutions of the state. Wisconsin and Utah are examples of this. In this duality there seems to be some preference of state libraries to make arrangements with and use the telecommunications system serving academic institutions. The second, or Pattern B, is where a state has one telecommunications system for state government and a second one for education generally. An example of this is the State of Florida where the Department of Education runs the Florida Information Resource Network (FIRN). Examples of library uses of FIRN include the twenty-eight community college libraries using it for a centralized automation system, dial-up access to the combined database of the state university system library and Internet access for all libraries.

An interesting dual system is that of Georgia. Peachnet serves the academic institutions. Edunet serves the K-12 community. The staff of the Georgia State Library anticipate library services will operate on both educational systems.

A third major classification are those states which have extensive decentralized telecommunications. This category would include states which operate three or more telecommunications systems. The Commonwealth of Pennsylvania, for example, has about seven major publicly owned telecommunications systems operating within state government. Massachusetts has three: one for state government; one for higher education; and one for elementary and secondary education. The Massachusetts State Library anticipates a fourth network for libraries may emerge.

The fourth, and last pattern of state telecommunications development for libraries, might be called state nurtured. Here the state has created a new organization. It is often arm's length, almost always not-for-profit; it may be termed quasi-governmental, a government corporation or a public-private partnership. The most advanced of these is NYSERNet serving the state of New York. The New York State Library has membership in NYSERNet and with NYSERNet has created a joint planning team and a joint interest group. NYSERNet carries the state library catalog. It is beginning interlibrary loan transmission and it has an enabler disc which allows libraries to tour the Internet. A one-year access to the Internet at reasonable cost is provided for libraries.

There are enough examples mentioned in the above taxonomy to identify the most common library products and services moving over the telecommunications systems. It should be stressed

libraries, especially state libraries, are both users of telecommunications and suppliers of products and services that move over the networks. Indeed, telecommunications network developers often seek out state librarians because libraries have products and services ready to be mounted on the networks. There is ambition within most developing systems to serve the end user in homes, business offices, classrooms, and public places.

Participation, facilitating, and coordinating access to telecommunications network are one role played by state libraries. Here are other roles:

- Representing a substantial user base (the libraries of the respective states) at the table as telecommunications systems are developed and expanded. State librarians are those people "present at the creation." Having a substantial user base, they often chair important committees. Leslyn Shires, State Librarian of Wisconsin, chaired the Education Working Group in the $6 million telecommunications study conducted for Wisconsin by Ernst and Young. James Nelson, State Librarian of Kentucky, is Vice-Chair of the Communications Advisory Committee and serves as Chair of the Committee on Information Policy under the Kentucky Information Systems Commission. Sara Parker, Commissioner of Libraries for Pennsylvania, chairs the Education and Business Subcommittee of the Senate Distance Learning Committee.

- Working with the legislature to ensure laws and policies in telecommunication do not ignore libraries. Most states would be envious of the state law of Alaska where by statute each state agency must notify the state library of "data published or compiled by or for it at public expense including automated databases". The state library must then "provide for its accessibility". Utah has just obtained a $50,000 planning grant for the state library as a result of legislative action.

- Provision of funding for library participation is a third and important role of state libraries in telecommunication networks. Clifford Lynch has discussed his view that National Research and Education Network (NREN) legislation is accompanied by only small amounts of new funding. He foresees regional and statewide networks may be dependent upon their own resources for funding participation in NREN. State libraries have used discretionary funds and creative arrangements to help libraries join telecommunication networks. Funds often provide for subsidized participation until a library is able to fund participation on its own. Uses of LSCA Title III, HEA-2D and other funds to which state libraries have access are matched by the willingness of many states to use centrally funded telecommunication services to extend to libraries.

- The training role is the fourth role. State libraries have been effective in creating awareness about telecommunications, Internet and the legislation for NREN. Most states have strong, ongoing training programs and many states focus on automation and technology having a conscious goal of keeping librarians, governing authorities and even the

general public knowledgeable about the rapid emergence of electronic materials and services.

In summary there is substantial work going on within the states to ensure libraries participate in statewide telecommunication networks. This is usually believed to lead directly to mid-level or regional network participation through to Internet and the future NREN. If, as often stated, libraries are to be "the on and off ramps" to electronic highways, state libraries clearly see their role as advocates, engineers, and construction crews for "the on and off ramps." They also provide articulate and informed participation in leadership to build the information super highways.

STATEWIDE DATABASE DEVELOPMENT

James B. Johnson, Jr.
Director, South Carolina State Library

The development of state libraries was dictated by local conditions. While each state has a state library agency, that institution reflects the political peculiarities of its state. The duties and responsibilities of state libraries vary. Library network development also is largely determined by conditions prevalent in each state. What works in South Carolina may not work in Louisiana. Likewise, Louisiana's experience may not be right for South Carolina. While the creation of automated library networks is a recent phenomenon, the characteristics of networks are often based upon the state's existing systems and multi-type library structures. In addition to organizational structure, there were several other issues which contributed to the diverse nature of library networks. Among these are the number of research libraries in the state, pre-existing interlibrary loan patterns, demographics, local computer and telecommunications infrastructures, and local library leadership.

State library networks as we know them today, owe a great deal to the development by the Library of Congress of the MARC record which enabled the rise of bibliographic utilities such as OCLC, WLN, and RLIN. These records in machine-readable format provided the basis for statewide databases. In recent years, as private vendors have provided cataloging options based on the MARC format at a convenient price, even the smallest libraries are now creating bibliographic records which contribute to statewide databases. In South Carolina, we decided in the late 1970s to require use of the MARC record in any grant funded by the state library. We had our share of people who complained it was an unnecessary bother, but we've been proven right.

State libraries have taken an active role in the development of statewide databases, usually with the help of the Library Services and Construction Act (LSCA) Title III funding. While differences exist in state database structures, there are several approaches prevalent today. First, the design decision---will the database be a single entity or a number of databases linked together? Secondly is the issue of accessibility--will the database provide real time online access or off-line access through regularly scheduled updated storage medium such as microfiche or CD-ROM? A recent issue concerns the content of the database. Will it contain strictly bibliographic information or will it contain information files from library and non-library sources (both bibliographic and full text)? Administrative decisions on these issues are crucial. And again the decision must in large part be based upon pre-existing conditions such as computer facilities, library collections, etc.

Perhaps the most frustrating aspect of this decision-making process deals with the rapid development of computer and telecommunications technology. It is increasingly apparent what may not have been thought feasible six months earlier due to a lack of technological capability is now possible because the technologically impossible is readily available in the marketplace. The major problem with these technological advancements is the inability to obtain sufficient funding to acquire the latest technology needed to implement these enhancements.

When considering all of these variables, there does not appear to be any way of predicting, based on state size, number of major collections, etc., which path a particular state will choose.

Let's take a look at how several states have decided to address the development of a statewide database.

An example of a single online database can be found in Georgia where they are creating a database using the group access capabilities of OCLC. This database, known as GOLD, was begun in 1988, and it will take several years before all libraries are switched over to it. "By July 1994 all GOLD members will be required to have tape-loaded their current holdings into the database to equalize the interlibrary loan burden in the state." Likewise, North Carolina, using the same approach, is enhancing its database by tape loading records of non-OCLC members at a tremendous rate.

A number of states are creating a single database, but have decided to use CD-ROM technology for access. Louisiana plans to update its LAsernet database bi-annually. Maine has issued the second edition of its CD-ROM catalog, MaineCat. Mississippi produces a microfiche version, as well as a CD-ROM catalog. Connecticut now also has the second edition of its CD-ROM database. Echoing the thoughts of many states, the Connecticut plan indicates "although we recognize the advantages of online access to a statewide database, we realize that providing this service will not be financially practical in the near future."

Many states have decided that one union list is not feasible for a variety of reasons. Recognizing the creation of one database containing the holdings of nearly 8,000 New York libraries was a monumental project, the New York State Library defined its database "as the aggregate of machine-readable records describing and locating materials in all physical storage media and formats in New York institutions and support files." It is the linking of these databases that will ultimately provide a statewide database.

The experience of the Vermont State Library is somewhat unique. They have also taken the approach of a distributed system. However, they have become the focus for state government information and databases and, as such, provide access statewide to a variety of state government databases such as court decisions, state bids, health department databases, etc. The Vermont approach could be a model for the future development as state libraries seek to expand their capabilities in providing access to state information databases.

I'd like to now focus on the South Carolina Library Network: how it developed; what factors guided our planning; what has been our experience; and what do we see in the near future. We have drawn upon the features of other networks and have designed a network we feel works for us. We originally envisioned having one large database, but because of financial and technological constraints, we early on determined that our network plans and statewide database would have to take a multifaceted approach.

First of all, the South Carolina State Library, like many state libraries, began as a public library extension agency. It was not until LSCA Title III was passed in 1966, that we had any formal relationship with other type libraries.

The South Carolina State Library has traditionally been the major interlibrary loan lender for public libraries. In the establishment of an automated network we wanted to continue to enhance the level of service provided to public libraries. At the time, we realized interlibrary loan to academic and special libraries was a small percentage of total interlibrary loan traffic from the state library. Interlibrary loan

to schools (K-12) was non-existent. As the state library was also the primary information source for state government, any decision about network architecture needed to consider state government access.

Basic to providing any service is the legislative authority to do so. LSCA Title III provided justification for networking activities, but with the Reagan Administration consistently recommending the elimination of federal funding for libraries, this authority was not as secure as we would have liked. The state library's enabling legislation was completely re-written to include these federal mandates. A review of *The Report on Library Cooperation* (1989 edition) indicates that nine states still do not have state statutes for networking activities.

In order to permit public library access to the network, we secured a significant state appropriation for the purchase of hardware and software. Because of our history of working with public libraries and the fact that 95 percent of all public library interlibrary loan activity was handled through the state library, public libraries were the first type of libraries selected to participate in the South Carolina Library Network. A large proportion of state appropriations was devoted to microcomputers, modems, and telecommunications software for local public library use. As a result, South Carolina was one of a few states to have online access for all public libraries to an external database. This exposure to an automated system increased local awareness of what technology could offer local library users. I also believe it helped to accelerate the development of local automated systems.

Access by academic and technical college libraries in South Carolina was provided soon thereafter. Institutional and special libraries have since gained access. In every case, interlibrary loan traffic with the state library has increased significantly. I hasten to add, this increase with the state library's interlibrary loan service represents entirely new interlibrary loan activity on the part of many of the smaller academic and special libraries. Historically the state library had no tradition of working with public school libraries. A pilot project began in 1988 to provide access to several high school libraries has been expanded to twenty-five high schools, roughly 10 percent of all public high schools. Additional school access has been put on hold due to lack of funding. We feel we are working an untapped diamond mine. The use by the school libraries participating in the pilot project has far exceeded our expectations, and again this use represents entirely new interlibrary loan activity.

The impact on the end user has been gratifying. Interlibrary loan use has increased by 39 percent over the last four years. Public library use is up 17 percent. But use by academic libraries has increased by 125 percent. School use for only 25 schools should exceed interlibrary loans to institutional and special libraries combined this year. State government use is up 65 percent.

Going back to the design of the South Carolina Library Network, I want to re-emphasize the multiplicity of our approach. The South Carolina Library Network has several components. The state library's bibliographic database, Library Information Online (LION), contains the monographic records of our collection including state documents. Another component, FEDCAT (Federal Documents Catalog) became available in 1990, greatly expanding the capability of many South Carolina libraries to easily identify and obtain federal government documents. An electronic mail feature allows libraries to place requests for materials online. We are proud of the fact that we can usually mail items the same day they are requested. An electronic bulletin board is also available. This week we are bringing up a South Carolina online library directory, the first of several online information products we envision.

Realizing that libraries who were not members of SOLINET only had access to LION we established the South Carolina Library Database as another component of the South Carolina Library

Network using SOLINET's group access capability. South Carolina libraries now have access to 3.5 million South Carolina records in OCLC. We envision tape loading non-OCLC member records in the future. Eventually we will use this capability to develop local and sub-state regional databases to encourage local resource sharing.

Another component of the South Carolina Library Network is offline in nature--the South Carolina Union List of Periodicals. This is a microfiche catalog produced from the machine-readable records of twenty-five libraries. This union list will complement the online serials holdings of two major research collections in the state--one of whose holdings is accessible through OCLC while the other is available through access to their local online system. Linking of the systems is a future consideration and will provide a three-step approach to a statewide union list of serials.

We have seen that South Carolina libraries have made a commitment to automation. Staffs have been trained to do things hardly envisioned several years ago. Training is one area where all of us involved in networking need to focus attention. The technology is changing. There is constant staff turnover. So often many potential users of state and national databases begin their quest at the smallest branch library. Therefore it is essential that staff working in these small facilities be well-versed and have training sufficient for them to make efficient use of the available technology. Policies and procedures are changing at all levels. These factors require that an on-going training program be established.

In conclusion the challenges facing those responsible for the development of statewide library and information databases are tremendous. On one hand we must take into consideration the factors which will expand our capabilities to meet the information needs of the next century. At the same time we must realize that if our technology exceeds the abilities of those who work directly with the end user, we will have failed. It is necessary that we approach our long-range goals of easy access for everyone with a reasoned and well-thought out plan.

MULTITYPE LIBRARY NETWORK DEVELOPMENT

Jean E. Wilkins
Manager, ILLINET/OCLC Services
Illinois State Library

This presentation will highlight some of the current multitype activity in Illinois. The programs I will be discussing are illustrative of current efforts.

In January 1992, the directors of the eighteen Illinois library systems and state library staff began to meet monthly for the purpose of discussing merger and realignment of the systems. Some years ago a study of Illinois systems was done and consolidation of systems was recommended. The report was discussed by Illinois library groups with no action taken at that time. Now one merger is official. The two southern systems, Shawnee and Cumberland Trails, will merge on July 1, 1992. The merged system will cover an area of 11,000 square miles.

It has been recommended that each system have a minimum operating budget of $1 million per year. It is thought that dollar amount will contribute to a viable operation base for the system.

In November 1991, the Illinois State Library held a one-day "State of the Network" meeting. Forty invited participants discussed issues and the direction of the ILLINET network. A facilitator assisted in small group process and the recommendations included: (1) develop a network strategic plan; (2) encourage MARC conversion; (3) analyze ILLINET resource sharing activity; and (4) revise, as an immediate action, the ILLINET interlibrary loan (ILL) code.

An Interlibrary Loan Revision Task Force was appointed and directed to complete a draft of the ILLINET Interlibrary Loan Code by April. After appropriate review and revision it will become effective on January 1, 1993.

A study of the Illinois Library Delivery System (ILDS) has been completed by Deleuw Cather, a transportation consulting firm. This company did the original study ten years ago when ILDS was established. Study recommendations are being considered for implementation.

Library Services and Construction Act (LSCA) Title III grants will be awarded to Illinois library systems for non-public library MARC record conversion. Enhancing local resources for resource sharing is a desired outcome of these grants.

Cooperative Collection Management (CCM) is another example of successful multitype effort. Seven years of positive activity is attributed to a statewide as well as grassroots effort among diverse libraries. The success of this program is based on willingness not to study but to try these methods. During the past two years, data has been collected from 200 libraries for a CCM database. This program is jointly funded by the Illinois State Library and the Illinois Board of Higher Education. Since 1984, $1.5 million has been given through grants.

Our state database, ILLINET ONLINE, continues to grow. The database built using ILLINET OCLC tapes includes holdings of more than 800 libraries.

Illinois has a long tradition of multitype development. Cooperation between the Illinois State Library, Illinois library systems, and the 2,500 network members continue to contribute to successful building throughout the state.

STATE LIBRARIES AND OCLC

Kate Nevins
Vice President, Corporate Relations, OCLC, Inc.

The ongoing interaction and programs of state libraries and OCLC Online Computer Library Center, Inc. are of a much greater magnitude than the basic usage statistics would indicate. While state libraries reflect only .8 percent of OCLC's overall membership, 1 percent of OCLC's cataloging volume, and 3.4 percent of OCLC's interlibrary loan (ILL) volume, the actual importance of shared programs and relationship is significant.

OCLC was initially established by libraries within a single state--Ohio--to control costs and improve access through shared intellectual and physical resources and through processing economies of scale. In OCLC's initial incarnation, the member libraries were all academic libraries. However, it became apparent to the members that the benefits of a shared database and program should not be limited to the academic library community. Rather, diversification of the membership would extend the economies of scale and improve access to unique materials held by differing types of libraries. This realization led to extension of OCLC membership to all types of libraries in Ohio, and ultimately, to libraries of all types across the U.S. and abroad.

It was during this early expansion of OCLC usage that the important relationship between OCLC and state library programs developed.

In the early days of OCLC, the Ohio College Library Center and the State Library of Ohio worked very closely together. Joe Shubert, then State Librarian of Ohio, served on the OCLC Board of Trustees, and the state library helped pioneer early OCLC efforts. The state library supported the first public-use terminal experiment with OCLC in the United States. In 1976, the State Library of Ohio awarded OCLC $500,000 to convert to machine-readable form the retrospective holdings of seven major public libraries in Ohio. This was a major step for the state library, and for OCLC. It led to the establishment of the OCLC Retrospective Conversion Service, which has since gone on to convert over 67 million records for over 1,200 libraries.

Over the years, OCLC has worked together successfully with many state libraries on many projects. The United States Newspaper Program has involved forty state projects so far, and most state libraries have been important parts of these projects. The OCLC Online Union Catalog has been designated the official state database in many states and is the de facto state database in many others. The Group Access Capability (GAC), which was introduced to help bring smaller libraries into the electronic mainstream, and the Union List system now support 164 groups involving over 10,000 libraries. State libraries have been the driving force behind most of these GAC's and union lists.

State libraries play important roles in the OCLC network in five significant ways:

1. Infrastructure. State libraries provide the framework, including protocols, expertise and relationships, needed to establish cooperative programs in a state and national network environment.

2. Funding. State libraries administer state and Library Services and Construction Act (LSCA) funds for cooperative programming is critical for growth of the national network.

3. Technology transfer. State library support is critical for extending use of new, enabling technologies, to previously unautomated libraries. In the early years, the transfer involved both large and small libraries. Today, however, the transfer is focused on small, often rural, libraries that may be outside the technology mainstream.

4. Database creation commitment. State libraries recognize the need to build a database of resources within the state. This is seen in several ways: state library support for start-up of libraries in OCLC's cataloging services, state support of retrospective conversion, and commitment to procure and load into the national databases the results of cataloging performed on other systems.

5. Interlibrary loan usage. Various state libraries have utilized the ILL subsystem as a resource sharing mechanism. This has moved ILL from a hierarchical model that depends on the resources of a few, highly centralized collections to a decentralized model that makes more effective use of resources throughout the state and beyond.

As technology advances, the relationship between OCLC and state libraries will continue to change. As in the past, components of the OCLC mix will be developed in partnership with state libraries, and current components will be reshaped to fit emerging realities. What are the challenges and opportunities?

1. There are still many libraries that are unserved in the national network context. How can these libraries' needs be met? These "elusive" libraries may be best brought into the national network through the state library infrastructure.

2. Finances for libraries will continue to be constrained. How can we work together to address and enhance productivity?

3. The strong base we have built for bibliographic data needs to be expanded to include delivery of full text information.

4. New technologies and economic realities are resulting in new models for systems. While early systems were built on a centralized basis due to economies of scale and scarcity of expertise, it is now feasible and desirable to decentralize some functions. This results in such questions as: Which data and functions are best maintained centrally and which locally? How will interactions between systems take place? Have we identified and are we implementing the necessary telecommunications interconnectivity, standards, and data transfer capabilities? Even more

important than these technical issues are the policies, economics, and implementation issues related to emerging models.

Some of these issues were summarized by Dr. K. Wayne Smith, President and Chief Executive Officer, OCLC, in a recent speech to twenty-five state librarians. Let me read part of that speech.

> I want to turn briefly to a larger issue. Indeed, this issue goes to the very heart of OCLC and to the future of librarianship.
>
> OCLC's history lies in cooperation and resource sharing, its future depends on it, and therein lies a dilemma that has disturbing parallels with "The Tragedy of the Commons."
>
> Garrett Hardin first used the analogy of "The Tragedy of the Commons" in 1968 to suggest that the answers to such problems as overpopulation and pollution could not be found exclusively in science and technology, but, rather, required a "fundamental extension in morality."
>
> Dr. Hardin argued that decisions reached individually are not necessarily the best decisions for an entire society. He pointed to the custom in English villages to treat the community pasture as a commons open to all. So long as the commons has the capacity to support the cattle that graze there, all is well. But, when each herdsman exercises his individual freedom to add more cattle, eventually it leads to overgrazing, which adversely affects all herdsmen. Dr. Hardin summarized the tragedy thusly: "Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in freedom of the commons. Freedom in a commons brings ruin to all."
>
> In the past 20 years, OCLC member libraries have created a commons that they have used and shared for the benefit of their institutions and their users. That commons is the OCLC Online Union Catalog, which libraries have built into the world's largest database of bibliographic and holdings information. OCLC, in turn, has provided libraries with services based on cooperative cataloging and resource sharing. Clearly, the OCLC commons has worked well for 20 years.
>
> Now, however, the pursuit of individual self-interest threatens the commons. Distributed processing, powerful microcomputers, and other technological advances provide libraries with the individual freedom to bypass the commons when they want to. Libraries are now able to take advantage of advances in technology to establish local and regional resource sharing networks that use OCLC only when they cannot find what they need locally or regionally. These developments make practical and economical sense for the individual libraries. Viewed at the individual library level, they pose no discernible threat. Unfortunately, they also hold the potential for a very real tragedy of the library commons--the demise of the national online union catalog.

> This is a tragedy because of the simple fact that no single library can now, or is likely in the future, to be able to meet the information needs of all its users.

Maintenance of the "library commons" relies on the activities of many players in the library community. OCLC is committed to providing capabilities to transfer data to and from local, regional, and national systems; to facilitate telecommunications links with a variety of networks; and to ensure efficiencies of both national and regional programs. State libraries will continue to play a key role in this changing model as funding, implementation decisions, and protocols help shape the future of libraries' shared "bibliographic commons."

STATE LIBRARIES AND REGIONAL BIBLIOGRAPHIC NETWORKS

Bonnie Juergens
Executive Director, AMIGOS Bibliographic Council, Inc.

I wish to thank Howard McGinn for planning this program, which is allowing me to hear first-hand about the many differences as well as similarities among our various organizations. I think it's useful to be aware of those similarities and differences, partly because the tasks before us--as defined by both Howard and Cliff Lynch--are of such magnitude that it will take varied and creative efforts from all of us and our colleagues-at-large to accomplish them.

My assignment is to speak briefly about state libraries and regional bibliographic networks. Let me say right off that I'm addressing relationships and the importance of partnering to reach goals.

When pressed for a formal context I always refer to Barbara Markuson's 1976 definition of a "library network." She said a library network is a group of libraries sharing resources with the aid of:

1. a telecommunications network
2. one or more computers
3. a separate network staff and headquarters
4. a defined governance structure which provides for decision making input from the members[1]

You'll note that Barbara's definition imposes no limitation based on size or geographic coverage, but the "regional" in my topic today refers to "multi-state", wherein lies one of the major differences between a network like AMIGOS and those in Illinois, Indiana, or New York.

Being multi-state adds to the richness and fullness of relationships the network can and should and frequently does have with state libraries!

The missions, constituencies, funding sources, governance structures, and constraints--perhaps especially constraints--within which the five state libraries in the AMIGOS region operate vary to varying degrees from those of AMIGOS. Our purposes and constituencies overlap significantly, however, and it is our mutuality that must drive us to work together to make our differences actually benefit each other--which is to say, benefit the libraries in our constituencies.

Let's stand back for a moment and think about the roles that networks play. Some of the terms that come to my mind include:

- Facilitator
- Negotiator
- Educator
- Banker

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[1] Barbara Evans Markuson, "Library Networks: Progress and Problems," in Donald E. Hammer, ed., *The Information Age: Its Development, Its Impact* (Metuchen, NJ: The Scarecrow Press, 1976): 34-59.

- Service provider
- Consultant
- Information disseminator
- Trend watcher and Trend setter

Sound familiar? Sound like a lot of what you spend your time doing? And yet, rather than being competitors with state libraries, regional networks can and should be partners. We have lots of examples of ways that state libraries have worked with regional networks to accomplish something that couldn't have been accomplished alone. A primary example is the fact that AMIGOS--and other regional networks, I know--wouldn't be what we are today without the early and continuing assistance of the state libraries. In addition to the fact that our state libraries are individual members of the network, our big public libraries and many of our academic libraries got their original membership boost from their state library. Many of you state librarians in this room helped the networks get on our feet, and you did it for good reasons:

- Mutuality of mission
- Mutuality of constituencies
- Recognition that we're stronger together than alone

We helped you retool America's libraries and create effective structured interlibrary loan networks, and you helped us become and remain strong enough to do it. Over the years, we've helped each other create and fund and conduct a variety of research and demonstration projects, educational programs, and political coalitions, and we've both become stronger for the partnering. Together, we made sure that public libraries weren't left out of the automation and data conversion frenzy and fruitfulness of the seventies and eighties, and together we can make sure that they're included in the national and state networks that will work their way both up--to the international--and down--to the subregional and local--levels that Howard McGinn so eloquently espouses.

I referred earlier to the fact that there are some things we have in common with state libraries and some things we don't. And in fact one of the things we most don't have in common is the same set of constraints. The fact of difference in our constraints allows us to complement and supplement each other. Sara Parker's comment this morning about state libraries benefitting from network flexibility is right on target!

So the list of very good reasons for a partnering relationship still applies:

1. We can help each other get money for libraries. We can do that by joint grant projects; by pooling limited funds to accomplish large tasks; and by simply providing leadership in helping libraries work together to build resource-sharing structures and political coalitions. We (i.e., the networks) can sometimes help you (i.e., the state libraries) by administering project funds ... and then sometimes that shoe is on the other foot. Such network services as volume purchasing for discounted prices on equipment, databases, or supplies have helped libraries get more bang for their buck and in some cases have made the purchase possible at all.

2. We can assist each other both overtly and, perhaps more importantly, behind-the-scenes, to read and interpret our mutual environments; to

gather information and critical feedback that we both need to hear, and to disseminate information that needs to be shared with our separate detractors. Network staff can be tapped to assist in bridging gaps between various components of your constituencies--most obviously across type-of-library lines or upon occasion between the Hatfields and McCoys of library-land. These are certainly ways that we've helped each other over the years, and the need for such supportive relationships grows larger, not smaller, in tight times!

3. We can focus on expanding our mutual resource-sharing in ways that will supplement and complement each other's programs. Some of the most visible recent examples of this have been in the preservation efforts now underway in a number of states. We've had lots of joint preservation planning activity in the AMIGOS states, and I hear similar reports from other regional networks such as SOLINET, NELINET, and PRLC.

   Another major area in which we might benefit from more cooperation is that of training and education for library personnel, especially distance learning.

4. And we can work together to ensure that libraries of all types and sizes will have access to the national network. Many of you are working to create state databases and statewide networks. You're working with a variety of players to accomplish these tasks and in many cases your regional network is working right alongside you to find ways to get this work done. This is where Sara's suggestions about using our technical expertise to help you work with other state agencies, and working together to articulate the vision of the electronic library to your funding sources, are, once again, right on target. BCR, NELINET, and CAPCON are examples of networks that are working now to facilitate access to the Internet for their members. Such support ranges from planning to training to facilitating actual telecommunications access, and there's lots of room right now for creative partnerships to resurface or be strengthened.

What makes the successful partnerships successful?

- Lots of communication
- Information-sharing
- Mutual respect
- And a driving need to make small resources stretch far

The communication and coordination are helped by governance structures such as BCR'S, in which state library seats are mandated on the network board. At AMIGOS I can see the difference that having state librarians on our board makes, and we've been fortunate to have two state library trustees during the past four years. The partnerships are strengthened by mutual efforts to stay in touch, to share ideas and concerns and solutions. At AMIGOS we try never to turn down a request for participation on

a state-library advisory committee or planning group or state-library-sponsored program, and we ask for participation from state library staff just as readily.

Just hearing some of the reports and comments here today has given me ideas for ways that we can enhance and extend our working relationships with state libraries in the southwest. And I'm reminded that a productive partnership, like a successful marriage, doesn't just happen "happily ever after." It takes nurturing and sometimes downright hard work, but I hope you'll agree with me that the results have been and can continue to be very much worth our mutual efforts.

Perhaps we need to be sitting down together more regularly to clarify goals and roles?

STATE LIBRARIES AND THE DISTRIBUTION OF STATE GOVERNMENT DATABASES

Rodney G. Wagner
Director, Nebraska Library Commission

In presenting remarks on the topic of state libraries and the distribution of state government databases, I don't wish to imply that I have any particular expertise in this area, or that the Nebraska Library Commission is doing anything extraordinary in this regard. There are a good number of state libraries which have been working hard to achieve order and access to state government information resources. We have been learning from those experiences and sense the increasing urgency of getting our own house in order.

You may have seen the cartoon recently showing the ghost of Mrs. Leary's cow in SCUBA gear navigating an underground tunnel in Chicago. Somewhat like Mrs. Leary's cow, we are faced with navigating in a flood of electronic information. In Nebraska, we have had some seepage, but at least we are still looking at a trickle of what is yet to come.

About a month ago, an article in the Lincoln Journal caught my eye. Actually, it was the headline, "End Seen for Free TV Sports." What television is watched in my home is often of some sports event. My cable bill is already high and the thought of pay per view on top of that got my attention. In reading the article, however, something else was noted that I believe brings focus to what the library and information profession is facing. This particular article was based on a presentation by Everette Dennis, Executive Director of the Freedom Forum Media Studies Center at Columbia University. Dennis stated that

> 'We live in an age of convergence. The print and electronic media are now one. Both use computers and satellites, both engage in the same basic processes, though they may use different tools and methods. The same can be said for all the allied media industries and professional fields. Advertising, public relations, press associations, feature syndicates, media research organizations, cable, business information services, filmed entertainment, corporate video and other enterprises are changing as one electronics-based computer-driven system emerges.'[1]

State libraries are dealing with a convergence of print and electronic media in managing and providing access to state government information resources. It was twenty years ago, in 1972, that the Nebraska Legislature enacted legislation creating the Nebraska Publications Clearinghouse as a division of the Nebraska Library Commission. For twenty years the clearinghouse has worked with Nebraska state government to identify, collect, index, abstract, film, and provide access to a wealth of state government produced information resources. The clearinghouse has served as a model for state documents programs. We are not seeing any dramatic changes in publishing activity. But shifts are occurring and patterns emerging that present an equally, if not greater, challenge in addressing electronic information resources. The distribution and use of mini and micro computers within state government, along with database management and other software, have added to the information resources within state

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[1] Fred Knapp, "End Seen for Free TV Sports," *Lincoln Journal* (March 13, 1992): 11.

government. Electronic information has supplemented and in some cases replaced paper documents. A growing number of state government agencies are making their information resources available in electronic format.

A recent letter received from an engineer in the state Water Resources Department illustrates the replacement of a paper document with an electronic record. The letter was issued to Nebraska water data users, and went on to state that the department is no longer publishing an hydrographic report. The data can be requested from the department as a print-out, or supplied on a diskette. The clearinghouse state documents librarian, Karen Lusk, noted that the letter is not an isolated occurrence. Notifications of other titles ceasing in print format have also been received. Karen asked what could be done about this kind of information loss and how the information can be preserved for future use if it is stored, updated, and deleted in a computer format. She went on to ask how do we know what information is out there in computer form in various departments and not available for public access. Those are the relevant questions that we have before us.

A few developments have come about over the past few years that have positioned the Nebraska Library Commission to address these issues and perform a key role in state government electronic information distribution. These developments have come about, at least in significant part, due to the library commission's strategic planning, a private strategic planning initiative--*Nebraska Futures*, and the legislature's *New Horizons for Nebraska* strategic planning project.

Some eighteen months ago, staff of the Nebraska Library Commission, the State Records Management Office, and the Legislative Reference Library began meeting to explore common interests. A key issue for our agencies has been facility needs. We have collaborated to propose construction of a State Information Center that would be shared among these agencies. In addition, the vision statement for the State Information Center that we put together saw a central role among these agencies in providing access to Nebraska state government information in a variety of forms, with particular emphasis on electronic access. The Records Management Office, the Nebraska Library Commission, and the Legislative Reference Library are separate entities. The Records Management Office is under the secretary of state; the commission is an independent executive agency, and the Legislative Reference Library is a function of the legislature. Apart from this independence is a long association. The Records Management Office films the documents collected by the Publications Clearinghouse, and has administrative responsibility for the public records of Nebraska state government. The Legislative Reference Library staff use information resources of the library commission. The partnership among these entities, we expect, will result in a State Information Center, and a more effective means of providing access to state government information.

A recent publication of the Nebraska Library Commission, *Critical Components: Library and Information Services for an Informed Nebraska*, includes the following statement:

> On local, state and federal levels, many important information sources are not made generally accessible to the same public that pays for the collection of such information. In Nebraska, the development of a State Information Center, made up of a core group of the Nebraska Library Commission, the Records Management Division of the Secretary

of State's Office, and the Legislative Reference Library, is seen as an important step in addressing citizen need for access to government information.[2]

Whether the 1991 White House Conference on Library and Information Services results in new federal initiatives or not, the White House Conference process has had a positive result in Nebraska. The state pre-White House Conference was conducted under a theme of "Nebraska Information Partnerships." The focus on information for productivity led to a Nebraska Development Information Partnership. This initiative emerged as a partnership between the Nebraska Library Commission and the Nebraska Development Network.

The development network is an attempt to bring together the many public and private agencies and organizations that are involved in economic and community development. At this time, over sixty different entities are involved in the network. The network's mission is successful economic development. The Nebraska Library Commission has accepted a key role in the development network. Information is properly regarded as an essential ingredient in economic development success. The commission has developed an electronic information service to support the development network. This public electronic information service is named Nebraska Online.

Nebraska Online may become the primary means by which the Nebraska Library Commission provides access to a variety of electronic information resources. Some of those resources have been available through the commission's library communications network (e.g., state statutes, legislative bills, hearing schedules, and attorney general's opinions). The partnership among seventy plus public and private entities has heightened interest in Nebraska Online as a means for agencies to extend the information resources of their operations. A directory of electronic information resources is a primary component, as is a services directory which allows users to quickly identify and match agencies with service needs. A variety of CD-ROM databases can also be accessed through the network.

Nebraska Online is in some respects a state version of the concept presented in the GPO WINDO. It is intended as an access point and navigational aid to state government information. Its development has been based on a desire to provide powerful searching capabilities within easy to use formats. Nebraska Online has been presented as a partnership information utility. It is a product of the agencies participating in the Nebraska Development Network. An additional feature of the first release is an electronic publishing component. Included will be electronic newsletters, news releases, and other text files.

Plans for further services include an e-mail gateway to other commonly used e-mail services, including the Internet. It is intended that Nebraska Online be accessible through an Internet node. A conferencing mode is also planned. State government job listings are to be included, and a Nebraska manufacturer's database will be available.

The challenge is to meet the information distribution needs of Nebraska state government. An example of this is a recent meeting with representatives of the Nebraska Energy Office. The ability to make available energy-related information and data in a timely, efficient, and economical manner was

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[2] Nebraska Library Commission. *Critical Components: Library and Information Services for an Informed Nebraska.* (Lincoln, Nebraska, 1992): 2.

quickly perceived. They are ready. What they want is achievable. There are hundreds of others who could make the same request.

The State Information Center, the Development Information Partnership, and Nebraska Online have been pursued absent a state information policy. We have had the good fortune of support for these initiatives, particularly from the governor and lieutenant governor. Their support has probably allowed us to avoid some of the inter-agency rivalries that may have erupted had we attempted to do this on our own. An information policy is desirable to give sanction to loosely knit guiding principles.

Identification of information resources, formats, standards, security, cost, search software, and accessibility are just several of the many issues in state government database distribution. There is a tremendous opportunity to provide considerably more effective access to the wealth of information created within our state governments. State libraries have a key leadership and public service role in making this happen.

STATE LIBRARIES AND PUBLIC INFORMATION POLICY/LEGISLATION

Richard M. Cheski, State Librarian
State Library of Ohio

Technology is revolutionizing the creation, collection, and use of information by local, state, and federal governments. Government should employ the tools provided by information technology to improve government services; promote efficiency and social improvement; promote citizen access to public information and government services; and protect privacy and confidentiality of individuals and corporations.

Government officials require useful, accurate, and timely data to create and implement rational and far-seeing public policy. Information policies should foster close cooperative intergovernmental and interagency relationships.

In virtually every sector of our economy, information and information technology are used to re-evaluate and redesign business functions and, on occasion, the business itself.

State governments have applications where the provision of information has been transformed by technology and services are provided to citizens in an essentially new manner.

The following illustrations show how the public sector is using information technology in many different ways to solve a distinct yet different set of problems.

- A number of states have built and received federal approval for automated welfare eligibility determination systems which are based on income verification which requires the on-line search of many disparate data bases to determine if an individual has received wages or payments.

- Other states are experimenting with telecommuting as an alternative to having their employees report to a central office on a daily basis and many states are experimenting with citizens meeting government reporting requirements with electronic submittals of filings.

- Geographic information systems are used in many states for purposes ranging from legislative redistricting to analyzing land usage and studying utility reconfigurations.

Because of the diversity of the responsibilities, there is no consistent set of principles which is being used to guide the public sector's use of technology or evaluate its impact on existing organizations, process, power and authority, legitimacy, and the public interest. Another reason is the highly political content of these prescriptive statements. Information technology and information could become a political issue since much of what we advocate deals with information access and dissemination, privacy, and the fundamental need of the people to know what their government is doing.

Technology is bringing policy makers together. They are finding a common need compelling them to share information and to confront issues arising from the ever-growing changes and advances.

Some of the issues include charging fees for government information, providing public service through machines instead of people, the effects of information on privacy, and how much direct citizen participation to provide.

State government voiced a broad set of concerns in response to recent congressional and executive branch information policy issues.

Congress is considering a complex array of initiatives which further complicate the relationship between the states and the federal government. Some of these include:

1. telephone company ownership of cable TV and information services;

2. role of the government printing office as a single gateway to all federal information;

3. national research and educational network;

4. public electronic access to the holding of national information technical service;

5. fee-based access to products of the Library of Congress.

These are only a few examples to which many more can be added.

Because of these issues, three organizations with a direct stake in the impact of these initiatives, the National Governors Association (NGA), the National Council of State Legislatures (NCSL), and the Council of State Governments (CSG), established committees to study and develop a state information policy.

When it was seen that these three organizations (which have a common constituency: state government) had the same goals in mind, the three entered into an agreement for a single State Information Policy Consortium composed of members from the three organizations to develop a joint policy.

The benefits from the joint undertaking, as seen by these organizations, include, for example, the ability of the states jointly:

- to set an agenda to address current cross-cutting intergovernmental information resource issues in response to state needs and to the impacts of new federal agency and legislative information developments;

- to anticipate and focus attention on future information needs;

- to explore innovative problem solving approaches;

- to provide a network to facilitate information exchange among the states on an inter-disciplinary basis.

The mission of the consortium is to improve, within the states, the functioning of the public data infrastructure to achieve more effective public policy decision-making; more efficient delivery of government services; reduced paperwork; and improved access to information. The Consortium will accomplish its goal by providing a forum for state executive and legislative officials.

The consortium's scope of work includes issues concerning the generation through the final disposition of the information in all public policy areas. The consortium by its nature, takes a very broad view of information issues, addressing them from a multifaceted perspective. While many state based organizations are making considerable improvements to state information and to the balance of the federal/state partnership in specific program areas, no entity has brought together the multiple state perspectives to examine information issues across programs, issue areas, and functional responsibilities.

The consortium is expected to accomplish its mission by (1) providing a forum for states where information issues and concerns can be raised for intergovernmental and interdisciplinary discussion; (2) exploring joint problem solving approaches; (3) and the developing multi-pronged recommendations to provide a set of legislative and executive branch action steps to the NGA, NCSL, and CSG.

The consortium will continue to address:

- executive branch information policy and regulatory issues;
- key information-related provisions of federal legislation;
- research and policy analysis projects that support the overall goals of the consortium and the ongoing work of each of the associations;
- the need to facilitate and dialogue among the states and between the states and the federal government.

The work of the consortium, so far in its two meetings, has been spent in coming to an agreement of the concerns of the executive, legislative, and administrative components of state government. Each has its own conception of what should be included in the definition of public policy, information and access, and information policy. The consortium is developing a vision statement, preamble, and principles dealing with state information policies. So far, in a very rough draft, the consortium has identified and agreed upon four principles (which are still being fleshed out) to be considered.

These principles are:

1. To improve governmental service; some issues under this topic are:

   A. to de-layer government through the use of information technology to improve communication between levels of government, between citizen/customers and government officials, and between employees and management.

   B. to encourage the public to communicate with government from their homes, businesses, schools, and libraries by providing easy access to communication networks,

low-cost or free computer services, easy-to-use applications, and user friendly hardware.

C. to adopt and use generally accepted information standards to improve coordination among various units of government.

2. To promote economic efficiency and social improvements; some issues under this topic are:

A. to collect data once and use it many times.

B. to return information to information providers, provide them with access to related information and analyses, and allow them to participate in the design of the information collection process.

C. to regulate information use in a way that will encourage rather than restrict efficiency and economic development.

3. To promote citizen access to public information and governmental services; some issues under this topic are:

A. to consider data, information, and applications as "public records" and share them with other users, other governments, private sector organizations, and individuals.

B. to protect the principle of public access to information in the development of pricing policies.

C. to encourage the publication and dissemination of information in multiple formats--printed, magnetic, optical, or on-line--so that the public can choose the media that most efficiently and effectively meets their needs.

4. To protect the privacy and confidentiality of individuals and corporations. Some issues under this topic are:

A. to protect individuals, organizations and enterprises which provide information to government from unwarranted invasion of their privacy.

B. to ensure the security and accuracy of data and protect information systems from accidental or intentional misuse.

While these are only a start, the consortium also has before it issues which are not easily addressed and will be a continuing discussion. Some of them are:

- fee-based public information--this is one of the most contentious of all and one that states and federal agencies have taken different approaches to;
- privacy;
- paperwork reduction;
- GIS (Geographic Information Systems) access;
- electronic freedom of information;
- the mix of government and private sector information;
- citizen interaction with agencies themselves.

The state library will have a prime role in the development, gathering, research, and dissemination of government information. As you heard earlier, many state library agencies are integral parts of the information access and dissemination needs of their state governments. As the state libraries continue to be a prime contact for the gathering of data and information from federal and state sources, they will need to take an active role in the establishment of the information policy and interconnectability of the resources within state government. The ability of the state library agencies to act as the node for information from other states will strengthen the states ability to establish national links, regional connections, and to interface with the federal government.

This is not an issue which will easily and quickly be resolved. Government is the major source of information. How to tap and use that information is a controversial and complex issue and process. We are just starting through the mine field.

STATE LIBRARIES AND SERVICE TO PRIVATE CITIZENS

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Washington State Library

The structure and service mix of each state library agency services have evolved in response to several factors, including the history of the state, its geographic size and population density, the number and distribution of population centers statewide, the method of agency governance, and numerous other factors. While state libraries do have some things in common, such as the administration of Library Services and Construction Act (LSCA) funds, they also sport some fascinating differences, making them one of the more diverse life-forms in librarianship.

Being as they are agencies of state and not local government, one may not immediately or readily associate state library agencies as serving the general public. One rather associates that type of service with the local public, academic, school, and special libraries which the general public funds as their primary information sources. Historically, however, state libraries have delivered various services to the general public out of default, circumstance, or design. Some continue to do so, either directly from their own services and collections, or indirectly, through local libraries of various types. Therefore, while it is difficult to identify only one model of state library service to this segment of the population, some commonalities tend to exist.

Many state library agencies began as special libraries serving the information needs of state government and state legislatures. As their states' populations grew, local libraries did not necessarily keep pace with that growth. Therefore, it often fell to the state library agency to provide some sort of library service to citizens of the state, through such methods as travelling libraries, deposit collections, and bookmobiles. At the same time, the library development movement began, establishing the still vital leadership role of state library agencies in establishing and developing services at the local level. The passage of the Library Services Act in the 1950s and later LSCA gave a tremendous boost to that movement and helped result in the strong public libraries that are the hallmark of the United States today.

Some few state library agencies began only with the passage of the Library Services Act and its descendants, with a very strong emphasis on leadership in the establishment and development of local library services. Thus, under a variety of models, state library agencies have historically provided both direct and indirect services to the general public, often in addition to other client groups. With the passage of time and the development of strong local libraries, the role of state library agencies has shifted, away from a strong, direct, almost parental role to one of strong leadership, facilitation, and coordination. Although the picture at the state level is changing, it is interesting to examine the ways that state library agencies assist in meeting the information needs of the general public, even today.

DIRECT SERVICES TO THE GENERAL PUBLIC

Sharing Collections Developed for Other Audiences

State library services delivered directly to the general public generally involve access to specialized or general backup collections, already developed to meet the needs of certain audiences, and to which the agency has erected few, if any, barriers to access by the public as well. For example, those

state library agencies, which are charged with legislative/executive branch reference develop collections and services to support the work-related information needs of government officials, often allow limited to full general public access to those collections and services. (An interesting tangent to this type access occurs because state libraries tend to attract a secondary market of lobbyists, consultants, and the like, whose information needs naturally parallel those of the primary client group called "state government." This group's information needs may or may not be fully met by a local public library ostensively serving the same group of citizens.)

To a greater or lesser extent, then, state libraries tend to offer some access to their collections--where existing--to members of the general public, albeit generally not on a primary client basis. However, in geographic areas where the state library is the strongest library within a reasonable commuting distance, the state library tends to become the natural library of choice for the general public in meeting its information needs.

General Collections for Purposes of Interlibrary Loan

In addition, many state library agencies over time have developed collections of a more general, popular nature to support the overflow needs of local libraries. For decades these backup collections have formed the backbone of statewide interlibrary loan networks, particularly in states where strong public and/or academic libraries have not existed to share in this responsibility. The attraction of this general collection, where it is made directly accessible, adds to the demand for direct general public use of state library agency collections. As local libraries of all types develop in strength, some state library agencies are reexamining their collections and the development policies that support them. An increasing number of states have recognized that they are no longer the only show in town, and that resource sharing is more effectively accomplished on a wider basis, with the state library agency concentrating its resources on its special collections and information supporting state government information needs, with other libraries in the state assuming the general collection sharing role.

Other Special Collections

Further, it has long fallen naturally to state library agencies to collect certain specialized collections on a centralized basis, sharing that information with the state's other libraries. Notable among these collections are federal and state documents, state history and other state specific collections, local newspapers (retrospective and current), and state or regional genealogical materials.

While these collections have occurred in a variety of formats, in recent years collection development has been both energized and challenged by their availability on some sort of electronic format, enabling access to a broader range of information and making possible a creative array of data manipulation techniques. To some extent, access to these sometimes rare materials can be directed, controlled, and otherwise managed in cooperation with local libraries. In other instances, the information has become more elusive as the technology through which it is available becomes more sophisticated.

In the case of federal documents (and often with state documents as well), there exist statutory mandates to ensure public access as a condition of depository status. In a number of states, the state library agency has also assumed the primary role of collecting and making available collections of works by authors residing in the state and/or who have written about the state and surrounding geographic region. As a rule, few other libraries or other agencies in the states tend to collect as completely as the state library agencies in this area.

In most all states, even in agencies which do not develop collections, state libraries tend to assume some sort of responsibility to assure that special information continues accessible to the general public through some means.

Special Populations

In the belief that efficient delivery of service often occurs on an areawide basis, many state library agencies have assumed either a direct or strong supportive role in either delivering or coordinating library services to special target populations statewide. Notable among these services are public library type services for the blind and physically handicapped. Though the model may differ from state to state, most state library agencies have at least some influence on these services--direct delivery, contract with another entity, or participation in funding, to name a few options.

Similarly, public library services to the residents of state-supported institutions is often influenced by the state library agency, with those programs proceeding under the general guidance or with the cooperation and assistance of the state library. In Washington State, the situation is unique. Branches operating in state corrections, developmental disability, and mental health institutions are actually branches of the state library agency; staff and operating costs are an integral part of the state library's budget and organization. Where the state library agency has a strong voice in provision of this type of service on a statewide basis, there is a greater opportunity for consistent levels of service quality for all these populations, varying less among institutions.

Unserved, Partially Served, and Underserved Local Citizens

A number of state library agencies retain at least a portion of their historical responsibility to provide some sort of basic service to local citizens who either do not have locally funded library service, or who support only a modicum of service. This role was substantial in former years, before the upsurge in strength of locally funded library systems. However, particularly in states with lower overall support and in areas where geographic size or low population density pose substantial barriers to forming and supporting strong local libraries, some state libraries continue to meet a portion of that remaining need. The state libraries in both Dakotas, for example, mail state library materials directly to local citizens upon request.

Ironically, state libraries who retain this role tend to work against themselves organizationally, for as the direct service arm continues to be the public library to the partially served or unserved, the development divisions, sometimes located in the same building, continue to attempt to get library service established and/or further developed in that same local area.

INDIRECT SERVICES TO THE GENERAL PUBLIC

Interlibrary loan--the coordinated sharing of state library specialized or general backup collections with local citizens through their local libraries--has long constituted a primary indirect service to the general public. However, there are also other important ways state library agencies indirectly serve the general public.

Leadership in Information Access and Technology

As many state library agencies have altered from their traditional roles relative to local libraries and the general public, a need has also been growing for a centralized coordinating agency to provide leadership on behalf of the general public in areas of continued open access to a maximum amount of information. These efforts include minimizing all sorts of barriers to access as well as coordinating the best use of emerging technology. This role will likely prove to be one the most crucial and yet challenging roles for state library agencies in the coming decades.

Technological advances are opening seemingly unlimited opportunities for the generation, collection, storage, manipulation, and dissemination of information in a myriad of forms and formats. However, those exciting possibilities carry with them very real potential limitations for those citizens who do not have the financial wherewithal to purchase that information. In the federal government information arena alone, state library agencies, working through the Chief Officers of State Library Agencies (COSLA), continue to monitor and work cooperatively with the American Library Association and others to ensure continued access to unique and vital government generated information to the general public. As more agencies and private companies enter the information marketplace in the rarified atmosphere of advancing technology, state library agencies are in a potentially strategic position to work with local libraries and citizens; state legislatures and the Congress; state and national library associations; state and national regulators; and the vendors themselves to effect an equitable basis for public access to a wide variety of information.

Consulting, Coordinating, Facilitating With Local Libraries of All Types

One of the more valuable, perhaps unique, services offered by all state library agencies is the consulting assistance they give to local libraries. While most citizens are largely unaware of these services, the state consultant/local library relationship invariably translates into better service for citizens served by local libraries. Although in recent times that assistance has come to be sought more by smaller- to medium-sized institutions, larger libraries also avail themselves of the valuable, generally no-cost services offered by their state library in a variety of areas related to library management, technology, and special areas within the profession.

In former times, state library consultants often specialized in a particular area, such as collection development, management, continuing education, children's services, reference, and the like. Today, because the needs of local libraries are more complex and at times occur intermittently, the trend has been toward more of the broadly knowledgeable generalist, with provision made to employ a more specialized consultant from the private sector when a particular need arises. The latter innovative approach has been successfully used in Arizona, in which a centralized fund of money is made available on the basis of need to a local library requiring specialized consulting assistance not readily available through the permanent staff of the Arizona State Library.

Consultant or development divisions also work with the statewide library community, identifying issues for the state, translating needs into projects and activities, assisting in funding, taking action or helping hire specialized consulting assistance, and assuming a strong leadership role in positively affecting the overall health of the overall library community. A number of those projects have grown in importance and strength, into statewide or regional networks and consortia of all types, addressing a variety of shared needs.

Most consulting and development divisions of state library agencies maintain some sort of clearinghouse for library-related information--sample policies, access challenges within the state or elsewhere, literature on a wide variety of topics, demonstration hardware and software for library applications, and the like. Most state library agencies are charged with, or have assumed, responsibility for statewide statistics related to libraries. As that data and the technology available to massage it become more sophisticated, state library development divisions become a potent source of information on not only libraries but also on other information providers. In recent years, the library-related aspects of that data have come to be standardized and coordinated nationwide, with valuable applications to libraries, state and local governments, and the general public.

Similarly, local library trustees, as general citizens with a special interest in local libraries and the clients assisted by local libraries, benefit from the assistance of state library agency consultants, in areas ranging from the appropriate steps to follow in searching for a new library director, to boardmanship questions, model bylaws, and assistance in understanding public library law and regulation. In a number of states, the state library agency conducts periodic workshops in board and trustee skills--many patterned after the American Library Trustee Association's Workshop in Library Leadership model.

In an era when continued education is more important than ever before, particularly in the information intense profession of librarianship, state library agencies improve the quality of information service delivery to local citizens through coordinating and often directly delivering continued education opportunities for librarians and library-related personnel. This continuing education sometimes proceeds in tandem with the nearest library school, and sometimes following curricula developed at the state level or adapted from other sources. Particularly in more rural states, this form of training can represent the only way that those managing very small local libraries receive any sort of training to assist them in planning, budgeting, board/librarian skills, specialized service delivery, and coordination with the larger library community.

Finally, state library consultants provide direct assistance to local government officials who are seeking to establish or improve upon local library service for the citizens to whom they are accountable. State library agency heads and senior consultants provide, upon request, expert advice in a variety of issues related to libraries and other information issues.

TRENDS IN STATE LIBRARY SERVICES TO THE GENERAL PUBLIC

Because there is no one model for the evolution of all state library agencies, it is difficult to predict where they are going as a group in addressing the information needs of the general public as a whole. However, an informal survey of state libraries, conducted with no attempt at scientific accuracy for the purposes of this paper, revealed some few apparent directions.

As local libraries and networks of libraries develop and flourish, the need for state library agencies to be the centralized source of general information within a state appears to be declining. Similarly, as the quality and sophistication of local library managers rise, the traditional consultant role of "doing for" becomes eclipsed by that of facilitating and coordinating on a statewide basis.

Even a cursory perusal of the library literature, and the media in general, reveals that government at all levels, and state government in particular, is anything but a growth industry. All public agencies, and especially state library agencies, will maintain their vitality and usefulness only through extensive

self-examination, determination of a niche in the information provision industry where they are most effective and efficient, and then pursuing those unique or specialized roles, transferring or jettisoning those roles which can, and often are, being done better by others.

My unscientific survey of state library agencies revealed that most continue to collect and strengthen specialized collections, in increasingly more varied formats employing ever more diverse technology. Services which have shown themselves to be more effectively delivered on a statewide basis, such as services to the blind and physically handicapped, continue to be a mainstay of many state library agencies. Similarly, the Washington State model of actual delivery of library services to institutional residents is being examined by several states as a potential direct service to a special population. Similarly, the business of consulting remains strong in most all states, moving more to a philosophy of assisting toward independence rather than a more parental approach. Continuing education and literacy also remain high priorities for most state libraries.

Likewise, continued development of, and public access to, special collections appears to be a primary state library agency role. With changes in information handling, however, these same state libraries are working to cope with multiple formats and such issues of ownership and access that are inherent in the print world but magnified and made more complex in the non-print arena. There appears to be a definite, though not universal, move toward allowing reference-type access to more focused state library collections, while directing citizens to their primary libraries for circulation and other information services such as database searches.

Finally, most importantly, there is the evolving and vital role of leadership in the area of information access--one which state library agencies will likely continue to pursue with increased vigor on behalf of both local libraries and the general citizens served by those local libraries. State library agencies are indeed in a unique position, and as such have been attempting to strengthen their leadership role at the state and national levels. No set of issues will likely be as challenging, as exciting, or as far reaching as this one, for libraries in general, or for state library agencies in particular, in the coming decades. Nowhere is this situation more evident than in the emerging complex set of issues, opportunities, and risks that is NREN (National Research and Education Network).

STATE LIBRARIES AND SERVICE TO CORPORATE SECTOR/LOCAL GOVERNMENTS

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Consider the plight of a rural county manager facing the possible placement of a toxic or nuclear waste dump in the county. Ten years ago few questions would have been asked. The manager would have ordered a county-owned bulldozer to dig a trench. The waste material would have been placed in the trench, and after a rudimentary application of some type of lining, the trench would have been covered with soil. This method produced the Love Canals and Missouri Beaches. But the science and politics of the environmental movement have changed waste disposal methodology. The bulldozer has been replaced by the need for massive amounts of information even before the decision to accept such a waste facility is made. The county manager and the state and county governments overseeing the program must have access to information in these disciplines: chemistry, nuclear physics, geology, hydrology, seismology, modern methods of waste collection, storage, and transportation, carcinogens, and emergency management procedures.

The manager must also be able to evaluate the companies under consideration to manage the facility. This demands a knowledge of federal, state, and local laws and regulations, financial analysis, the history of the companies, pertinent background information about the companies' management teams, principle stockholders or owners, the companies' performance history, and performance bonds. Because local community concern will be strong, skills in public relations, marketing, in fact, every aspect of the political governing process will be required. This information may be purchased through the hiring of consultants or it may be developed locally. But the indisputable fact is that the process is information dependent and information intensive.

This inventory of problems faced by a county manager in almost any section of the country is the real world of information needs and applications. I suggest that, in the application of information to the solution of statewide and local community problems, to the development of businesses, large and small, to local economic development efforts, the library community experiences the information revolution and marketplace firsthand. The experience is laden with opportunities for the growth of the profession, an increase of influence, power, and funding for libraries in the local communities, and an enormous opportunity to insert the profession in a very real, crucial way into the daily operations of the community.

Let me focus more specifically on one of these towns, Henderson, North Carolina. Henderson is a small southern town near the Virginia border. The county seat of Vance County, it is a graceful town as only communities in the South, the Midwest, and New England can be. When Henderson was first settled in 1749 it was called Lonesome Valley by a homesteader who was homesick for Virginia. But since its name was changed in 1841 to honor Leonard Henderson, a Chief Justice of the North Carolina Supreme Court, the town has weathered the end of the War of Southern Secession, sometimes called the Civil War, the War of Northern Aggression, the War Between the States and "the Recent Unpleasantness", avoided the wrath of William Tecumseh Sherman, survived the Yankee carpetbaggers of the 1870s and the 1970s, lured Northern textile plants with promises of non-union cheap labor, made

some money by serving a nearby federal prison complex, and generally prospered.

Life is good in Henderson. Fine old homes line the streets. New shopping malls have been constructed on the edge of town. The older downtown stores are holding their own against these mall intruders. Each spring the local cotillion produces a new crop of debutantes and the country club and its fine golf course are almost always filled, assuming one can afford the membership fees. A nearby interstate highway has helped to create jobs in service industries catering to travellers. As far as is know most of these services are legal. Things are stable--for most.

But there is a growing feeling among some in the business community of Henderson that the stability is illusory. Perhaps the uneasiness started when the Research Triangle Park began down the road in Wake County in the 1960s and 1970s. Perhaps this uneasiness was reinforced when Vance County almost became the site of the massive supercolliding superconductor project.

Perhaps this uneasiness really began to affect the citizens of Henderson when they saw the products produced by their factories lose market share to foreign competitors who could provide even cheaper labor, when they saw county farms fail because of drought, debt, and the fact that the tobacco companies began to purchase less expensive foreign tobacco instead of Vance County tobacco, not because people were smoking less. Perhaps Henderson is like small towns in all of our states, suspecting that a fundamental change in its economic life is occurring, a change as significant as the industrial revolution, but not quite knowing what the change is or how to adapt to it.

Here is one way suspicion is expressed: the owner of a plant that manufactures lace approaches a speaker at the local Rotary Club after the meeting and asks for help in identifying market opportunities in Europe. He knows that his competition is no longer the factory in the next county or next state. He knows that the long-awaited global marketplace has begun to affect rural towns, and he knows that he has to understand and confront this new phenomenon head-on. What he and his fellow business owners may not know is that this new world is information dependent. What they may not yet understand is that it will be necessary for the town of Henderson to invest in community information assets if it is to compete in the marketplace of the 1990s and 2000s just as the town established industrial parks in order to compete in the marketplace of the 1960s and 1970s. What the library community in Henderson, in North Carolina, and across the United States must realize is that whoever provides the information that produces jobs and economic vitality in a community will control future community investment dollars, will wield significant community power, and will survive. Those traditional providers of information, like libraries, that confine themselves to the distribution of entertainment information will eventually atrophy.

Based on this notion, the State Library of North Carolina, in 1986, launched its North Carolina Information Network. The network is a loosely constructed electronic information delivery system, a type of mass communications medium, that attempts to distribute statewide the most up-to-date information for use by businesses, local governments, educational institutions, and private citizens. Because electronic distribution eradicates the effects of geographical barriers, the network reaches into every section of a state that boasts barrier islands that reach into the Gulf Stream and the highest mountains east of the Rockies. The network, however, has evolved into much more than an information distribution system. It is an electronic superhighway that engages in product development, personal communications, marketing, and the positioning of information distribution outlets in urban and rural areas to compete in a marketplace dependent on information.

The development of a network to serve the needs of the business community and local governments is by no means restricted to the State Library of North Carolina. Almost every state library agency in the country now serves, or will be serving, the needs of these two constituencies. And only the state library agency is positioned within the state governmental and legislative structure to perform these developmental and coordinating roles. The local public or academic library will not be able, by itself, to cope with the information needs of the information society. The fact is that the bibliographic networks that have served us so well over the past years are not sufficient to handle existing and future information needs. Ching-chih Chen describes the change very directly. "In the last three decades high technology has had an irrevocable impact on our libraries and information services. As a result, an information age culminating in the quick disappearance of the traditional 'gatekeeper' role of libraries was witnessed."[1]

The needs of the information society can be met only through information networks that offer a comprehensive array of products and services. These networks will not be the current library-based networks. They will be, instead, an amalgam of private and public information providers. Libraries will be just one component of this amalgamation. The networks, moreover, will depend on all types of information: bibliographic, statistical, textual, and visual. They will depend on information produced by international, federal, state, and local governments, educational institutions, and commercial producers. Most importantly, because of the rapid development of the power and decrease in price of the microcomputer and the rapid growth and accessibility to high speed data telecommunications, access to these networks is already available to a large portion of the population, especially to people in rural areas of the country. I suggest, once again, that only the state library agency can coordinate the multiple political, technical, marketing, and personnel functions needed to provide access to the national information network. I fear, too, that unless the public schools systems in the country begin to teach information literacy, much of the potential of this information will be lost. The State Library of North Carolina directly serves, through its network, companies like Duke Power Company, Glaxo Pharmaceutical Corporation, R.J. Reynolds Tobacco, and Ray's Paving Company in Warsaw, North Carolina, because it is good business for the companies, good business for the state library, good business for the town and state, and may mean the difference between poverty and a decent life for millions of citizens.

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[1] Chen, Ching-chih, "Libraries in the New Information Age," *North Carolina Libraries* 45 (Winter 1987): 187.

STATE LIBRARIES AND SERVICE TO EDUCATIONAL INSTITUTIONS

John C. Tyson
State Librarian, Virginia State Library and Archives

In today's economic environment, academic libraries are vital partners with state library agencies in providing for the future information needs of this nation's citizenry. Traditionally, state libraries have focused their programs and services on state government and public library development. As a result, academic libraries in most states have developed independently under separate governance and funding systems. In the 1960s and 70s, there was little incentive for state library agencies and academic libraries to undergo the challenging and stressful task of coordinating library services. However, economical, technological, political and social forces of the 1980s and 90s have created a compelling need for greater cooperation and interdependency between these two important components of the nation's information infrastructure. Problems associated with inflation and the information explosion have increased financial pressure on all libraries. The cumulative impact of these environmental forces has encouraged and reinforced the need for state library agencies and academic libraries to forge new relationships. Whereas, two decades ago a lack of activity between these two groups may have been perceived as a lack of interest on the part of both parties, a brief survey conducted in preparation for today's talk confirmed that state library agencies want to encourage the effective use of all library resources in their respective states, especially college and university libraries.

Academic libraries in the United States began in 1638 when John Harvard donated his books to the institution that bears his name. In 1990, American academic libraries ranged in size from a few thousand volumes to nearly 12 million and were as diverse as the 3,300 institutions they served. These public and private facilities provided information-rich learning environments to more than 12 million students and 700,000 faculty as well as to the general citizenry, including business, industry and government professionals and school and public libraries.[1] Obviously, a statewide network assembled without access to the wealth of information stored in academic libraries will be severely limited. As state library agencies work to provide leadership for the development of multi-type library networks that cross political jurisdictions and international boundaries, thereby encouraging libraries to participate in the National Research and Education Network (NREN), the need for a closer working relationship with these important storehouses of knowledge becomes more evident.

Amid these difficult times, academic libraries are looking to state library agencies for leadership in coordinating networking activities. Traditionally, private and publicly-supported academic libraries have operated very independently. In instances when they looked beyond their respective campuses for networking opportunities, they tended to relate more to bibliographic organizations such as the Center for Research Libraries, RLG, WLN, and SOLINET rather than to their state library. The window of opportunity is open for state library agencies to approach academic libraries in their respective states. In view of dwindling support from their parent institutions, the time is right to invite academic libraries to join existing networks that support sharing resources by electronic networking and cooperative interlibrary lending. Since 1966, state libraries have been able to use Library Services and Construction

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[1] ACRL Task Force on White House Conference on Library and Information Services, "Academic Libraries: A Source of National Strength" (Chicago: American Library Association, 1990).

Act (LSCA) Title III program funds to assist academic libraries that have been undersupported in regard to their need for equipment to access telecommunications networks.

CHANGES IN LEGISLATION

Accompanying changes in the laws, rules and regulations governing state library agencies have expanded opportunities to initiate multi-type library cooperation. No longer are state library agencies' responsibilities restricted solely to public library development and services to state government. The LSCA Title III program has helped reinforce an interdependent relationship in this regard. The survey conducted specifically for today's talk provided several important examples of recent legislation mandating programs for strengthening relationships between academic libraries and state library agencies. State statutes have been passed, amended, or interpreted to permit state library agencies to work directly with academic libraries, such as the Florida statute that provides for the establishment of multi-type library cooperatives and annual grants of state funds of up to $200,000 based on library cooperatives, long-range plans, and an annual plan for expenditure. Another example is the Pennsylvania mandate that the state library promote and support cooperation among various types of libraries in Pennsylvania. The purpose here is to increase services and resources available through libraries and to provide financial support for the development and maintenance of cooperative programs from funds appropriated to the state library. Another important piece of legislation was passed in 1983 by the Virginia General Assembly mandating multi-type library networking in the Commonwealth of Virginia. In spite of these successes, there remains a continuing need to promote legislation at the state level that will enable state libraries to work more openly and aggressively with academic libraries.

REVIEW OF LITERATURE

A review of the literature revealed that Dr. Charles Townley conducted a survey for the Pennsylvania State Library's Office of Resource Sharing and Academic Libraries.[2] His 1986 survey assessed the needs of academic libraries in Pennsylvania. A number of unmet needs were identified, including an advocacy role for academic libraries at the state level, linked systems protocols, telecommunications, new technologies, and preservation. Four focus groups of academic libraries met to suggest ways the state library might deal with these needs. The groups recommended that the state library develop advocacy for academic libraries within state government, similar to what is done for public libraries; develop a strong communications program; provide leadership in statewide linked systems, telecommunications and preservation initiatives; and provide consultant assistance on local integrated systems, communications, new technologies, and preservation. A series of workshops held throughout Virginia in the fall of 1991 by the State Networking Users Advisory Board (SNUAB) revealed that the aforementioned, unmet needs are still valid concerns of today's academic library community.

Successful library networks in this country can generally be attributed to three factors: the philosophy of larger units of service, technology, and the human element--cooperation. The concept of library networking is not uniformly popular in the United States owing to the need to change traditional library practices and the attitudes of the persons in leadership roles in these institutions. In fact, the series of workshops held in Virginia revealed that in some areas, the concept is downright unpopular.

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[2] Charles T. Townley, Charles R. Peguese, and Kenneth G. Rohm, Jr., "Academic Library-State Library Agency Relationships: The Pennsylvania Needs Assessment," *College and Research Libraries* 49 (May 1988): 239-50.

Even though multi-type library networking was mandated by the *Code of Virginia* in 1983, it never really got off the ground until recently; that is, until inflation forced libraries to consider it seriously as a viable option. When it appeared that financial resources would be adequate on the respective campuses, networking activities were perceived as too time consuming and costly when weighed against the benefits. Fortunately, that has all changed and now Virginia's academic libraries are enthusiastically looking forward to participating in the proposed statewide Virginia Library and Information Network. What we have learned is that there are some important underlying sub-issues that must be addressed. Among them are the fact that some librarians feel they are already overworked and underpaid, and, therefore, are not willing to provide services to unaffiliated groups. Another factor involves the perception of administrators on academic campuses who are not willing to use their scarce resources to provide library services to the unaffiliated. Another concern is that some librarians lack the professional commitment to go above and beyond the call of duty to address the public good in regard to information services. These issues are significant and must be addressed if we are to become more successful in the future. The important role of library schools in providing courses on social responsibility and professionalism that impart a philosophy of and commitment to library networking and cooperation will be critical in the future. Academic librarians must assume responsibility for educating administrators, faculty, and staff to the importance of resource sharing in the 21st century. Furthermore, they must be trained in new and developing technologies that have become an integral part of library networks. Research must be conducted on library networks currently in use to evaluate their effectiveness.

In the past, state library agencies have been there to fight for public library development, but in many states no one has been lobbying specifically for the academic library community. Dr. Townley's recommendations, though more than five years old, are as relevant today as they were in 1986. The future effectiveness of statewide, multi-type library networks will depend heavily on healthy, interdependent relationships between academic libraries and state library agencies.

DRAFT RECOMMENDATIONS FROM THE JOINT NAC/COSLA MEETING, APRIL 27-29, 1992

Henriette D. Avram
Chair Emerita, Network Advisory Committee

The last session of the Joint Meeting of the Library of Congress Network Advisory Committee and the Chief Officers of State Library Agencies was devoted to a review of the previous day and a half of deliberations to determine issues that remained significant enough for further study or other action. The attendees were divided into five groups made up as equally as possible of Network Advisory Committee (NAC) and Chief Officers of State Library Agencies (COSLA) members. Each group had a NAC and a COSLA member serve as chair and co-chair respectively to take advantage of networking and state agency experience, and one was selected as reporter and the other recorder.

After the five groups had identified issues, the attendees came together as a body of the whole to discuss the issues and articulate recommendations for each of the groups. Either the chair or co-chair was responsible to submit these recommendations to Henriette D. Avram who would remove duplication, edit where required, and resubmit a single set of recommendations to all NAC and COSLA member attendees for their review and approval. Originally it had been decided that all members of COSLA, whether they had been able to attend the meeting or not would receive the list of recommendations with an accompanying paper describing why such a meeting had been called and what had transpired during the meeting. In the interest of time to publish and to make the proceedings available, it was decided not to follow through on the decision to include the COSLA members not in attendance, but to rely on Howard F. McGinn, COSLA representative to NAC, and other NAC members who are also COSLA members, to brief their colleagues at a future COSLA meeting. Since the following are draft recommendations, NAC members would appreciate any comments that COSLA members care to make and Howard F. McGinn assumed responsibility to be the contact. This document with any additional comments received will be given review by a committee selected by the NAC chair, Frank P. Grisham, and will be published in final form in *Network Planning Paper No. 24.*

The following draft recommendations have, therefore, been reviewed and approved for publication in *Network Planning Paper No. 23* by all NAC and COSLA members in attendance at the April 27-29, 1992, joint meeting:

1. NAC and COSLA should encourage all state library directors to obtain access to the Internet for their organizations.

2. NAC and COSLA should sponsor a survey of current and planned state networking initiatives. This should be published as a *Network Planning Paper.*

3. NAC and COSLA should encourage regional networks, CNI, FARNET, and other appropriate agencies to develop and encourage the use of low cost means of access to the Internet.

4. NAC and COSLA should encourage the appropriate agencies to develop a coordinated approach to funding access to networked information through the LSCA, HEA, and ESEA appropriation cycles. LSCA should also be encouraged to fund networking demonstration projects within the states.

5. Overall investment in national information resources should be periodically subjected to a cost benefit analysis.

6. National network planners should be encouraged to use the existing network of libraries within the states.

7. NAC and COSLA identified health diagnosis and health care delivery, as well as health information, as an important area of use for the emerging National Network. The states concerned with assuring equity in health care expressed the concern that public policy ensure that access to the Network be provided at reasonable cost or subsidized for those unable to pay, especially for health services and information.

8. State and local governments should be encouraged to make their government information databases accessible on the national network.

9. Federal agencies developing NREN should be encouraged to include support for application software development, education, and training for science and technology, education, state and local governments, and community and small business uses.

10. Since there appears to be little understanding as to the relationship of NREN applications to user constituencies, NAC should investigate the depth and breadth of NREN applications to determine which applications are useful to which user group and the nature, scope, and size of the problem if one exists. Until the value of NREN resource potential is clearly articulated, various groups such as COSLA cannot work effectively to build support among state legislators, school and public library groups, the business community, and others.

11. NAC should work with appropriate groups to define public policy on the issues of access, equity, financial responsibility, training and support.

12. NAC should work with appropriate groups to develop a national strategic plan for NREN, including such elements as points 10 and 11 above, standards (to include protocols), recommendations for governance, organization, etc.

13. NAC proceedings should be published and made available in a more timely fashion.

14. NAC and state libraries should improve and extend communications by having a) more joint meetings and b) NAC liaison with the COSLA Networking Committee.

15. The state library should be the clearing house for information on state projects.

16. National organizations should be appointed to educate and train university faculty and staff in the use and value of networks and networking.

17. State libraries should be encouraged to advocate access, not ownership, as the key to the future, and connectivity is critical to this concept.

18. A better means of organizing electronic information which today has no commonly accepted

organizational structure needs to be developed as Melvil Dewey did for printed material approximately one hundred years ago. There is also a need for directories to the masses of information already in the system.

19. Telephone capability should be upgraded throughout the country.

20. The telecommunications industry should be made aware of NAC and its activities.

21. A database should be developed in a standard format (possibly a bulletin board on Internet) listing experimental projects, plans, etc., and including the telephone number of activity contact. [Winston Tabb stated at the meeting that the Library of Congress would assume this responsibility.]

APPENDIX A

STATE LIBRARY AGENCIES AND THE NATIONAL INFORMATION NETWORK

Howard F. McGinn, State Librarian
North Carolina Department of Cultural Resources
Division of State Library

An interesting short news item appeared in *The New York Times* Business Day Section a few weeks ago. The headline of the short story read, "Big BT Contract Awarded to M.I.T." The report was about a contract awarded to the Massachusetts Institute of Technology by the British telecommunications company. The $2.5 million contract was made to the university's Media Laboratory to develop new computerized tools to "see" and "understand" visual images. The story went on to report how the convergence of multi-media technologies, telecommunications, video conferencing, and computing offers the chance to create new tools to "allow computers to search through films and television footage for particular events and situations." The story concludes by stating that "possible future applications include video catalogues that allow users to search image databases via telephone lines or give television viewers the ability to scan through movies for particular scenes."[1]

A second news item is worth considering. This story was published in the *Wall Street Journal* on February 18, 1992. It begins, "The Digital Revolution has reached Glasgow, KY. In this small town 100 miles south of Louisville, the local electric utility has installed a two-way monitoring system that can conserve electricity by automatically shutting off water heaters and taking other load-reducing steps. The same network can deliver video images, news, and information. So, in 1990, the Glasgow Electric Board became the town's second cable-TV provider, feeding broadcasts to about 1,800 residents for a fee .... All this illustrates how the lines are blurring among four huge industries: computers, consumer electronics, communications, and entertainment."[2]

For many years the Network Advisory Committee of the Library of Congress has been meeting to discuss the multiple aspects of a national information network. The written proceedings of its deliberations form a time capsule that record the evolution of the electronic information industry. It is also the story of an industry that was once limited to a few major participants: the nation's national libraries, emerging corporate information providers, traditional publishers, and that maverick corporate entity called OCLC and its regional networks. But in a world that is rapidly being turned upside down, the solid philosophical underpinnings provided by such a controlled universe is decaying. The decay, decline, and confusion in the old order has been created, not because of any fault of that order, but because of the relentless advancement of technology and the explosion of the importance of information in the post-industrial era. And we are left with a multitude of questions.

What is the national information network? Which national information network are we discussing? Who are the developers of the new national information networks? Will the corporate

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[1] "Big BT Contract Awarded to M.I.T.," *The New York Times* (April 2, 1992): C4.

[2] "Blurred Borders: Industries Find Growth of Digital Electronics Brings in Competitors," *Wall Street Journal* (February 18, 1992): 1.

sector's development of such networks bypass the traditional academic-governmental networks? Who will pay for these services? What will be paid for the services? Will the corporate warfare for market shares tangentially destroy the established traditional networks? What is the role of the federal government? Should the national libraries be permitted to compete with other information providers? What are the roles of state and local governments in providing information to their communities? Who will serve the information-poor?

A point of departure for considering these questions is a discussion of the current and probable nature of the information needs of state and local governments and their corporate and private citizens. An examination of the information needs of these institutions and people suggests a situation where certain needs and problems that are information dependent must be dealt with through the application of what might be termed "macro-networking information systems." But, at the same time, the regulatory and budgetary actions of federal and state governments over the past decade, the creation of a strong local environmental consciousness, a mistrust of the political process on the national and, often, state levels, and the availability of inexpensive computer and data communications technology have fused to form a significant need for the application of "micro-networking information systems." The effectiveness of the development and application of products and services provided by either of these systems depends directly on the state libraries of the country.

MACRO-NETWORKING INFORMATION COMMUNITY NEEDS

Cliches but true: "We live in a global economy." "The competition is no longer the business next door but businesses in countries around the world." "Electronic data communications systems have eradicated the effects of political and geographical boundaries." "The United States must build an information infrastructure in the same way it invested in an interstate highway system." "Electronic information networks are the interstate highways of the future."

You and I have probably grown weary of hearing these sentiments expressed in numerous speeches at gatherings of information industry professional people across the country. Have you ever tried, though, to convey the brutal reality imbedded in these truisms to Rotary, Kiwanis, Lions, and other civic clubs in urban and rural communities? Probably not. In the usual twenty-minute sound bite available to a speaker between the opening prayer or song at such a meeting and the closing pledge of allegiance to the flag, have you ever tried to explain the benefits of NREN or OCLC to one of these clubs? Probably not. Have we taken enough time to consider that the future of the clubs' members and our futures are symbiotically joined in our ability to lead them into the global economy, over the electronic superhighways that we so easily discuss? Probably not. Yet it is the members of these clubs that control our funding on the local and state levels in their roles as county commissioners and members of state legislatures. It is the members of these and other local community organizations that provide members to Congress. And it is the members of these clubs and the citizens in their communities who form the constituency of the state library agencies. But as the state libraries work to provide access to the information services that will enable communities in their states to compete on an equal basis in a world economy, these same communities are experiencing an amazing array of problems that are local and that demand the application of micro-networking information-based solutions.

State library agencies have multiple duties delegated to them by their state legislatures. In most states, the responsibility for assuring that modern library and information services, especially public library services, are provided to all citizens rests with the state library. In order to fulfill these legislative mandates many state library agencies have become the prime architects of statewide information networks

that seek to provide the educational, technical, business, and recreational information required by citizens in every geographical area of the state. While much of this information continues to be bibliographical, a growing amount of the information demanded in local communities is for data generated by the federal government and, especially, by state governments. Suddenly, because of these growing information needs that are not traditional library services, state library agencies are finding themselves rushing to provide access to national and international sources of electronic information to communities across their states because the citizens in these communities are beginning to experience the effects, and understand the benefits, of the information-driven global economy. In a macro-information world, state library agencies are forming coalitions with other state agencies and with local governments to enable local communities to compete on a global basis. Yet many problems never cross county lines.

MICRO-NETWORKING INFORMATION COMMUNITY NEEDS

At the present time the county commissioners in Lee County, North Carolina, need to solve these problems: the placement of a proposed nuclear waste disposal site in the county for southeastern states; prison overcrowding; a now permanent and growing Hispanic population; school curriculum reform; school overcrowding; manufacturing plant closings; manufacturing plant recruiting; wetlands regulations; aging water and sewer systems; a growing retirement population; crime; drugs; teenage pregnancies; new highway construction; decreased tobacco sales; farm bankruptcies; and the need for a new county airport.

In most of the "Lee Counties" of the United States, this list would be familiar. Many of these problems have been caused by federal regulations and policies that have been consistently pushing the solution of domestic social and environmental problems on state and local governments through federal legislation and regulations. Cities and counties of all sizes must attempt to solve these problems without the federal dollars that once came with the imposition of the laws and regulations. And, in a bizarre opportunity for local libraries, all of these problems demand the provision of significant amounts of information if they are to be solved. Few local public libraries are able to afford the staff and dollars required to provide the information needed to solve these micro-level problems. The only agency in most of the states that can help these local libraries and communities is the state library agency.

STATE LIBRARIES AND THE NATIONAL INFORMATION NETWORK

The reality of the information world of the present and future is that access to the vital sources of information needed by local businesses, governments, and citizens hinges on the ability of a state agency to coordinate access to information and assure that access is provided equitably to all citizens. The reality of the information world in the states is that much of this information must be provided immediately to solve immediate problems. The reality of this information world is that the traditional academic-governmental attitude toward the creation, control, and dissemination of information must change to incorporate the needs of the country, not only at a national level, but also at a state and local level.

Most state governments are attempting to form state information policies because they have come to realize that access to information is not a luxury but a necessity. It will become increasingly important for governments at all levels to examine the investment made in the creation and provision of information. If a national information network is to grow and survive, its growth and survival must be based on the return on the investment made in its creation and operation by taxpayers. This consideration can only lead to a conceptual framework for the information network that places local application utility before national developmental whimsy.

Ironically, the same federal thinking that has forced mandates on local governments must be applied to the development of the national information network since the importance of the application of information resources to the solution of local problems is a more crucial investment for the taxpayer and outweighs national needs. In keeping with this same vein of thought, the role of the state library agencies must be reinforced by national and local legislation and funding because without the intervention of the state library little, if any, coordination of statewide information networks will occur, and no attempt will be made to provide equal access to information for all citizens. The state library agency is the only state level agency that is capable of providing consistent, unbiased, coordination between a national network and local communities. The state library agency is the only consistent source of the state government generated data that will increasingly become more essential to the operations of local governments and businesses than traditional sources of nationally generated data.

RECOMMENDATIONS

If the national network is to be properly utilized by state library agencies to serve their constituents, the following actions ought to be taken:

1. Public funds should be invested in new software applications only if these applications have functions that will enable state libraries and local public libraries to serve community information needs more efficiently and economically.

2. Investment in NREN, the national libraries, and all other publicly-supported information institutions and programs must require these institutions to develop plans in tandem with state library agencies in order to better serve local information needs. A national electronic highway without local on and off ramps would be useless.

3. The federal government must devote more policy and funding attention to the development of state and local information resources and access to these resources. This development must be coordinated with state library agencies if the tax dollar investment is to reach local communities.

4. The funding levels of federal and state information providers must be revised to place emphasis on state and local information needs. The national economy is not driven by investment in national information institutions but by the application of information by local business, industry, educational institutions, and governments. Information applied on a local level is a potential revenue and job generator, not a revenue consumer. Information applied locally will produce a return on that investment.

If a national information network is to be developed and survive, it must include state library agencies in its planning and funding. State library agencies are the only linkages between the national effort and local applications. State library agencies can bring to the development of the national network, the knowledge of the practical application of information in the lives of communities and citizens that would otherwise be lost in a national rush to information technology ecstasy.

APPENDIX B

NETWORK ADVISORY COMMITTEE LETTER TO THE NATIONAL LIBRARIANS CONCERNING THEIR ROLE IN THE EVOLVING NATIONAL NETWORK

As a result of the December 1991 meeting, The Role of the National Libraries in the Evolving National Network, Network Advisory Committee (NAC) members recommended that a letter addressing one of the roles of National Libraries be sent to the three National Librarians. This recommendation was included in the proceedings of that meeting and the following letter was sent to: James H. Billington, The Librarian of Congress, Joseph Howard, Director, National Agricultural Library, and Donald A. B. Lindberg, National Library of Medicine.

Dear [National Librarian]:

In its last meeting, the Library of Congress Network Advisory Committee (NAC) discussed the role of the National Libraries in the evolving national network. A recommendation was drafted by NAC to be included in the proceedings of that meeting.

The NAC membership considers that the leadership role which your Library has exercised in the areas of bibliographic control, standards, information dissemination, and preservation is also vital to the ongoing development of the National Research and Education Network (NREN). NAC, therefore, requests that this support to the nation's libraries be continued and that the Library of Congress, the National Agricultural Library, and the National Library of Medicine assume the ongoing responsibility for leadership with other agencies in coordinating the organization of information, thus making it more readily accessible to the citizens of this country.

APPENDIX C

REPORT OF THE BUSINESS SESSIONS

Henriette D. Avram
Chair Emerita, Network Advisory Committee

The business sessions of both April 27 and 29, 1992, were concerned with the future of Network Advisory Committee (NAC) which has been in existence from 1976 to date and chaired by Henriette D. Avram for most of that time. Mrs. Avram retired from the Library of Congress (LC) in January 1992, and the status of the committee was not clear.

A Home Committee was appointed by the parent committee and Toni Carbo Bearman, Peyton R. Neal, Jr., Robert L. Oakley, Joseph F. Shubert, and Frank P. Grisham, chair, were requested to serve. The Home Committee was asked to identify and consider the options for locating a base for the support of the continuation of the Network Advisory Committee.

The Home Committee conferred with a number of people and noted that considering a "home" for NAC raised issues such as future roles and goals of the organization, its relation to other organizations, resource support as LC had provided for many years, etc. Additionally, networking has accelerated in the United States for the past several years and will certainly continue to do so creating an environment for change.

The Home Committee therefore decided it would be in the best interest of NAC and networking, for NAC to remain at LC for the short term providing the time required for more analysis of the situation. In order to develop recommendations for the parent committee, the Home Committee prepared a revised draft set of goals and objectives for NAC to serve for the short term. Both the recommendations and the goals and objectives were discussed at the business session held on April 29, 1992, and what is given below was agreed to by the membership.

Recommendations[1]

1. For the long term, the Network Advisory Committee should invite the U.S. National Commission on Libraries and Information Science (NCLIS), in view of its responsibilities for follow-up for the White House Conference on Library and Information Services (WHCLIS) and its role in National Education and Research Network (NREN) implementation, to develop a proposal for the housing and support of NAC activities.

2. In the interim, NAC should remain at the Library of Congress.

3. NAC should seek a senior official from NCLIS to continue the latter's representation in NAC activities.

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[1] Taken from the Report of the Network Advisory Committee's "Home Committee," April 10, 1992.

4. For the short term, NAC should operate under a Steering Committee, composed of five persons and a chair, elected by the NAC membership, and the Chair Emeritus as ex-officio, for the purpose of appointing program planning committees and determining action plans for the membership.

5. For the interim, a transitional Support Group composed of David Penniman, Paul Peters, Winston Tabb, Peter Young, and chaired by the NAC-elect, should arrange for the necessary support for NAC activities.

6. Henriette D. Avram should be asked to assume a newly defined role as Chair Emerita.

7. NAC should seek continued interest and support from the Council on Library Resources, Inc. (CLR), including representation on NAC and continuance to its financial support approximately at the level CLR has provided for the past few years.

8. CLR funding should include for the Chair Emeritus an appropriate stipend, office space, and equipment, thus enabling her to work as a consultant with NAC and other principal players.

9. In addition, the funding sought from CLR and other sources should be sufficient to support a reasonable level of program planning and implementation, including the presentation of papers, studies, and speakers.

10. From LC, NAC should seek support for the secretariat function that has been previously based therein, including, but not necessarily limited to, arrangements for meetings, mailings to the membership, publication of reports, and coverage of the NAC activities in the *Library of Congress Information Bulletin.*

11. LC should also designate a senior official and an alternate to participate in NAC meetings.

Goals and Objectives[1]

The goals and objectives of the Network Advisory Committee (NAC) are to:

1) Promote the development of nationwide networking of library and information services and serve as a focal point and forum regarding networking issues and policies.

2) Encourage library and other information services organizations, including those from the public and private sectors which have designated representatives to NAC, to extend these discussions of networking issues and policies through their own dissemination mechanisms.

3) Provide input and advice to the Library of Congress, the National Libraries of Agriculture and Medicine, the National Commission on Libraries and Information Science, and other state, federal, and national library entities.

4) Provide input and advice to other government entities which are involved in networking and in the creation and dissemination of information which is to be networked.

5) Provide input and advice to the Council on Library Resources (CLR), foundations, and other non-government organizations with an interest in networking and coordinate with such other organizations as the Coalition for Networked Information (CNI).

When this part of the business session was completed, the membership agreed that the chair should serve for two years, three members of the Steering Committee for one year, and the remaining two for two years. Nominations were made from the floor and the elections held with the following results: Frank P. Grisham was elected chair; Toni Carbo Bearman and Joseph F. Shubert were elected to two-year terms; and Ronald Larsen, Ronald F. Miller, and Kate Nevins were elected to one-year terms.

Henriette D. Avram, under contract to the Library of Congress, directed both the preparation of the proceedings of the December, 1991, NAC meeting and, with the Program Planning Committee, directed the planning of the April, 1992, meeting supported by William L. Starck of the Library of Congress staff. In summary, each task is concerned with the preparation of the publication of the previous NAC meeting and with the planning of the next meeting. At a date sometime later than the April 29, 1992, business session but reported here for completeness, Winston Tabb agreed to extend Mrs. Avram's contract to cover the December, 1992, and April, 1993, meetings and assigned Mr. Starck to the project in conjunction with his regular job duties.

APPENDIX D

BIOGRAPHIES OF THE SPEAKERS

Richard J. Akeroyd, Jr. is the State Librarian of Connecticut. Under his direction, the state library has recently completed an extensive strategic planning process. Long-term goals include the development of a comprehensive information policy for the state, and the implementation of a Connecticut Library and Information Services Network by the end of the century.

Richard M. Cheski is State Librarian and Director of the State Library of Ohio. Formerly Director of the Colorado State Library, he has been director of three public libraries, and is a past president of the Chief Officers of State Library Agencies. Mr. Cheski is currently Chairman of the Organizational Planning and Coordinating Committee, a subcommittee on new communication technologies and information processes for the Council of State Governments.

James B. Johnson, Jr. is Director of the South Carolina State Library. He began his career at the South Carolina State Library in 1972 as Institutional Library Consultant. He was subsequently promoted to Director, Library Services for the Handicapped (1973), Deputy Director of the state library (1979), and to his present position in 1990.

Since 1989, Bonnie Juergens has been Executive Director of the AMIGOS Bibliographic Council, Inc., a membership-based not-for-profit corporation providing OCLC and other automated services and products to libraries in the Southwest. She previously worked for two regional networks, a library automation vendor, and both academic and public libraries, and has provided consulting services to a diverse range of libraries.

Howard F. McGinn is the State Librarian of North Carolina. Prior to his appointment as State Librarian in 1989 he served as Director of Network Development and Assistant State Librarian at the state library. Mr. McGinn's professional career includes 15 years experience in corporate sales and management in addition to experience in library administration.

Kate Nevins is Vice President, Member Services, OCLC. She began her career at OCLC in 1980 as a User Adviser for the Interlibrary Loan System. She was subsequently promoted to Section Manager (1984), Director of Network and Library Services (1987), and Vice President, Corporate Relations (1989). In May 1992, she was named Vice President, Member Services.

Sara Parker is Commissioner for Libraries of the Commonwealth of Pennsylvania and Deputy Secretary of Education. Responsibilities include administration of a research library and providing programs, funds, and services for the 6,500 libraries in the state. As Deputy Secretary she provides leadership for technology and administers distance learning programs for the Department of Education. Ms. Parker serves on the Pennsylvania Public Television Commission, the Historical and Museum Commission, and chairs the Interagency Working Committee on Geographic Information Systems.

J. Maurice Travillian is the Assistant State Superintendent for Libraries for the Maryland State Department of Education. He has previously served in the department as Chief of the Public Library Branch of the Division of Library Development and Services and before that as the Coordinator of the Maryland State Library Network.

John C. Tyson is State Librarian for the Commonwealth of Virginia. Prior to joining the Virginia State Library and Archives in 1990, he held positions in several academic libraries including University Librarian for the University of Richmond and Associate Professor and Assistant Director for Planning, Administration, and Development for Norther Illinois University.

Rodney Wagner is Director of the Nebraska Library Commission. He joined the Nebraska Library Commission staff in 1972 as Planning, Evaluation, and Research Coordinator, and was later appointed Deputy Director. While Deputy Director, Mr. Wagner also served as Director of NEBASE, a state network providing computer services to Nebraska libraries. He was appointed Director of the Nebraska Library Commission in February 1988.

Barratt Wilkins is Florida State Librarian and Director, Division of Library and Information Services, and is responsible for the operations of the state library and the state archives and Florida's records management, library development, and interlibrary cooperation programs. He is the immediate past president of the Chief Officers of State Library Agencies.

Jean Wilkins is the Manager of the ILLINET/OCLC Service at the Illinois State Library. Her areas of concentration at the Illinois State Library include OCLC activity, LSCA grant monitoring, and serving as a system consultant.

Jane Williams is a Research Associate with the U.S. National Commission on Libraries and Information Science. Previous positions have included several with the State Library of North Carolina from 1979-1989 as state librarian, assistant state librarian, and public library consultant.

Nancy L. Zussy is State Librarian of the Washington State Library, from 1986 to 1990 served concurrently as the Executive Officer of the Western Library Network, Washington State Library, and from 1981 to 1986 served as Deputy State Librarian, Washington State Library. She is the current president of the Chief Officers of State Library Agencies.

LIBRARY OF CONGRESS NETWORK ADVISORY COMMITTEE

JOINT NAC/COSLA MEETING AGENDA
April 27-29, 1992

MONDAY, APRIL 27

5:30 - 8:15 p.m. **REGISTRATION, RECEPTION, DINNER**

8:15 - **NAC EXECUTIVE SESSION 1**

TUESDAY, APRIL 28

PROGRAM SESSION

8:30 - 8:45 a.m. **Henriette D. Avram**
Chair Emerita, Network Advisory Committee
Welcome and Introduction to the Goals of the Meeting

8:45 - 9:00 a.m. **Howard F. McGinn**
State Librarian, State of North Carolina
Department of Cultural Resources, Division of State Library
Program Chair
Overview: The Role of State Library Agencies in the Evolving National Information Network

9:00 - 10:00 a.m. **SESSION 1: NREN**

Clifford A. Lynch
Division of Library Automation
University of California at Berkeley
NREN Update: How We Got To Where We Are and Where We Seem To Be Going

10:00 - 11:45 a.m. **SESSION 2: SIMILARITIES & DISSIMILARITIES OF STATE LIBRARY AGENCIES**

Barratt Wilkins
State Librarian, State Library of Florida
The Commonalities of State Library Agencies

Barbara F. Weaver
Director, Rhode Island Department of State Library Services
Research/Special Library Model

J. Maurice Travillian
Assistant State Superintendent for Libraries
Maryland State Department of Education
Department of Public Instruction Model

Richard G. Akeroyd, Jr.
State Librarian, Connecticut State Library
Independent Agency Model

Jane Williams
Research Associate
U.S. National Commission on Libraries and Information Science
Executive Branch Agency Model

11:45 - 12:15 p.m. **QUESTION AND ANSWER PERIOD**

1:15 - 2:00 p.m. **SESSION 3: STATE LIBRARY ROLE IN LOCAL, REGIONAL, AND NATIONAL NETWORK DEVELOPMENT, PART 1**

Sara A. Parker
Commissioner, State Library of Pennsylvania
Statewide Telecommunications Development

James B. Johnson, Jr.
Director, South Carolina State Library
Statewide Database Development

Jean E. Wilkins
Manager, ILLINET/OCLC Services, Illinois State Library
Multitype Library Network Development

2:00 - 2:15 p.m. **QUESTION AND ANSWER PERIOD**

2:15 - 3:00 p.m. **SESSION 4: STATE LIBRARY ROLE IN LOCAL, REGIONAL, AND NATIONAL NETWORK DEVELOPMENT, PART 2**

Kate Nevins
Vice President, Corporate Relations, OCLC, Inc.
State Libraries and OCLC

Bonnie Juergens
Executive Director, AMIGOS Bibliographic Council, Inc.
State Libraries and Regional Bibliographic Networks

Rodney G. Wagner
Director, Nebraska Library Commission
State Libraries and the Distribution of State Government Databases

3:00 - 3:30 p.m. **QUESTION AND ANSWER PERIOD**

3:30 - 4:30 p.m. **SESSION 5: INFORMATION DISSEMINATION**

Richard M. Cheski
State Librarian, State Library of Ohio
State Libraries and Public Information Policy/Legislation

Nancy L. Zussy
State Librarian, Washington State Library
State Libraries and Service to Private Citizens

Howard F. McGinn
State Librarian, State of North Carolina
Department of Cultural Resources, Division of State Library
State Libraries and Service to Corporate Sector/Local Governments

John C. Tyson
State Librarian, Virginia State Library and Archives
State Libraries and Service to Educational Institutions

4:30 - 5:00 p.m. **QUESTION AND ANSWER PERIOD**

WEDNESDAY, APRIL 29

PROGRAM SESSION (cont.)

8:30 - 10:00 a.m. **WORKING GROUPS: PROCEDURES, BREAK-OUT SESSIONS**

10:00 - 11:00 a.m. **WORKING GROUPS: REPORTS, RECOMMENDATIONS, AND ACTIONS**

11:00 - 12:00 p.m. **NAC EXECUTIVE SESSION 2**

APPENDIX F

THE CHALLENGE OF THE NATIONAL RESEARCH AND EDUCATION NETWORK

Clifford A. Lynch
Director, Library Automation
University of California Office of the President
Oakland, California

Introduction

This paper, which is loosely based on a presentation given at the joint meeting of the Library of Congress Network Advisory Committee and the Chief Officers of State Library Agencies (COSLA) in April 1992, focuses on the challenge offered by the current National Research and Education Network (NREN) Initiative to state and local governments, public libraries, and institutions of primary and secondary education.

The history of the Internet and the evolution of the NREN as a legislative and public policy initiative will not be summarized here, except as it contributes to an understanding of the current situation. Instead, the focus is on where we stand today, and on the opportunities and challenges that exist right now. (For an extensive summary of the full background and history from the perspective of the library and information services community, see [1].)

The Internet Today

Today's Internet links over a million computers and a community of perhaps 3 to 5 million individuals. The Internet is also linked to most other commercial electronic mail networks, expanding the community to between about 5 and 10 million people who can exchange electronic mail. The Internet is not only a U.S. network, but a global network that reaches every continent except perhaps Antarctica (and one hears conflicting reports about this) and connects over 4,000 independent, autonomously managed networks in over 30 nations. The Internet is not managed, but is coordinated through meetings of various national and continental networking organizations working together under the auspices of umbrella organizations such as the Internet Society. Networking developments in the U.S. are extremely complex, as the network represents the combined work of the federal government, a wide range of nonprofit networking organizations, universities, and other institutions, as well as a growing number of commercial network service providers. Networks built by all of these groups are interconnected within the U.S. part of the Internet.

The structure of the U.S. portion of the Internet is somewhat hierarchical. At the most local level, institutions such as corporations, universities, or libraries develop institutional networks of varying scope which might range from a network within a single building to a network serving a university campus, or a multi-site network that not only provides connectivity within library branches but among

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[1] Clifford A. Lynch and Cecilia M. Preston, "Internet Access to Information Resources," *Annual Review of Information Science and Technology (ARIST)*, Volume 25 (Amsterdam: Elsevier Science Publishers, B.V., 1990), 263-312.

them, or which links multiple campuses in a university or college system. These networks are typically managed and funded entirely by the local institutions. At the next level is a group of so-called "regional" networks, in most cases established by the National Science Foundation in the mid-1980s with seed funding but now self-supporting organizations. Most regionals are nonprofit. The regional networks cover geographical areas that range from part of a state (as in Northern California) through multi-state regions (as in the Midwest or New England). Institutions connect their institutional networks to one of these regionals. The regionals, in turn, are connected to one or more of the national backbone networks, including those funded by federal agencies such as the National Science Foundation, the Department of Energy, the Department of Defense, or NASA. In most cases, the connection is to the NSFNET, the NSF backbone. This is a nationwide network of about 20 nodes that are connection points for the NSF-funded national supercomputing centers and/or for the regional networks. On the east and west coasts are Federal Internet Exchange (FIX) sites called FIX-east and FIX-west. These sites provide primary points of linkage among the various federal agency backbones.

But reality is not as simple as the outline suggests. The various federal agency backbones exist primarily to support agency mission-related traffic, although in most cases they also support traffic for other agencies and organizations on a reciprocal basis. In some cases, the agency networks are directly connected to specific agency sites. For example, the Department of Energy network connects a number of national labs; NASA's network connects several key NASA sites (including some housed at universities). The National Science Foundation's NSFNET has perhaps the broadest agency mission--to support research and education--and thus is the most commonly used backbone for the general-purpose research and education traffic generated by institutions connected to the regional networks.

To satisfy clearly commercial traffic and the "grey" traffic, some commercial service providers such as Advanced Networking and Services (a joint IBM/MCI venture), Alternet, and PSI offer national service as alternative commercial backbones. They connect corporations directly, or connect regionals that want to import and export commercial traffic. These commercial ventures sometimes compete directly with the regionals for research and education business, and have, in a few cases, connected educational institutions who believed that the commercial firms offered better service.

The regionals have always been free to set their own appropriate use policies: Some choose to carry unrestricted commercial traffic within the regional; others choose to limit traffic to the support of research and education much like the NSFNET backbone. In the latter case, the regionals needed connectivity to national backbones that allowed unrestricted traffic, and the national commercial carriers fill this need. Most of the national commercial carriers are directly interconnected through the Commercial Internet Exchange (CIX).

Each network in the Internet sets its own policies for appropriate traffic; yet all are interconnected. One organization on the Internet may generate multiple kinds of traffic --- some commercial and some research and education--so some network traffic may be appropriate for a given network but other traffic may be inappropriate. We have no selective routing technology available to ensure that the right traffic goes over the appropriate networks (although it is an active area of research called "policy based" routing). There is only a certain amount of good faith and a realization that existing network use and routing is an imperfect reflection of existing policies about acceptable use as organizations connect to the Internet and use it to communicate with other organizations.

Members of the research, education, government, and library communities generally connect to a regional network which routes traffic passing out of the regional from these sites to the NSFNET or

perhaps directly to the commercial network (if they are communicating with an organization on one of the commercial networks such as a commercial firm). Most commercial firms are either connecting to the local regional if it carries commercial traffic, or directly to one of the national commercial networks. In general, their traffic outside of the regional (if they are connected to a regional) stays on the commercial networks unless they need to communicate with an educational institution or government site that is connected to another regional or an agency network, in which case traffic may transit NSFNET or another agency network.

General statements about either the performance or reliability of the Internet are not easily made, given the thousands of networks that participate, most of which never become involved in a given network connection from one Internet site to another. The speed of a connection across the Internet is typically limited by the slowest network in the connection's path (either because the base network technology on that network is of low capacity or because traffic is extremely congested on that network). The current NSFNET backbone is 45 million bits per second (T3). Most of the regionals are 1.544 million bits per second (T1), although many are sites connected at 56 thousand bits per second or even slower speeds. Institutional networks at a single site are typically about 10 million bits per second (Ethernet speeds) with T1 links between multiple sites that are part of single institutional networks. Speeds on the other federal agency networks vary widely, but are typically in the T1 range. The Department of Energy has recently let a contract for national links in excess of 100 million bits per second. There are experimental networks called gigabit testbeds that link small numbers of sites at still higher speeds, approaching 1 billion bits per second, but these are not used yet for production purposes. The commercial networks are again in the T1 (or occasionally T3) range.

The reliability of a path is only as good as the reliability of the weakest network along that path. Some networks are quite reliable; others are less so. Reliability is also affected by the reliability of the route interchange mechanisms *between* networks, which are extraordinarily complex and have suffered stability problems from time to time.

The National Research and Education Network (NREN)

On December 9, 1991, President Bush signed into law the National Research and Education Network initiative as Public Law 102-194. This legislation was based on a series of bills that had been championed by Senator Albert Gore in the last few sessions of Congress. The NREN legislation articulates a national vision of high performance, ubiquitous networking as a vital tool for improving research, education, and national competitiveness. It does not call for the *establishment* of a full national information infrastructure reaching every home and business, but views the NREN initiative as a vital step *towards* that ultimate goal.

The NREN encompasses two visions: It is a federal program that provides leverage and focus for a broader national program involving participants from higher education and research, industry, and state and local governments, as well as from the federal agencies. This aspect of NREN is well underway, although there are still many unanswered questions. The NREN is also a network. This has been variously interpreted by different groups. Some describe the growing Internet as the early stages of the NREN, and even call it the "interim NREN." This is clearly wrong, given the global nature of the Internet and the wide range of non-federal participation. During the period when the bill was under discussion in Congress, some believed that all of the agency networks could be consolidated into a single federal government NREN which would be a major part of the Internet, and in particular would be the major carrier for network traffic among and in support of the organizations and missions identified by

the legislation. This isn't happening yet. The federal agencies are continuing to develop and enlarge their agency mission networks in somewhat of a coordinated way. But at least for the present, the best view of NREN as a network might be as a set of federal agency backbones that are part of the Internet, though a broader interpretation of NREN as a national vision and policy might view most or all of the U.S. part of the Internet as effectively achieving that functional role of the NREN.

In understanding the NREN legislation, however, it is important to recognize that it is the *articulation* of a vision, rather than an *implementation* plan for that vision. The NREN legislation is not an appropriations bill. Paul Peters reminds us that the legislation emphasizes that a wide variety of institutions--including both public and private libraries and educational institutions from universities to primary and secondary schools--are *welcome* on the Internet or on parts of the Internet supplied by federal agencies, to the extent that they are consistent with agency missions. (In the case of NSF, the agency mission is broad support of research and education.) Further, the legislation indicates that as a policy direction, future developments should not block or discourage access from these constituencies. It does *not* provide funding to support connection by these institutions, or for the local information technology infrastructure at these institutions that will ensure effective use of the Internet. Indeed, the vast majority of the funding for public libraries and primary and secondary educational institutions has always been provided locally and regionally, and the NREN legislation does not alter this structure. The NREN legislation is somewhat of a challenge to state and local governments. If the non-federal funding sources rise to the challenge of funding connectivity to the NREN, the legislation at the federal level emphasizes that these institutions have a welcome place on the NREN.

Specific follow-on legislation to the NREN bill currently under consideration in Congress addresses specific groups of institutions such as federal depository libraries and might ultimately provide funding for their addition to the Internet/NREN (through, for example, the GPO Windo bill). But it is unclear whether this legislation will be passed by Congress or signed by the President at this time, or what its final form and provisions will be. For most potential NREN participants that are not generally federally funded, current federal programs can offer only seed money (through, for example, Department of Education or National Science Foundation grant funds) to make progress on network connectivity.

The NREN vision as expressed in the legislation signed into law combines two purposes: one to expand the envelope of high performance computing and communication, and one to make the network truly ubiquitous. The high performance component of the program has received funding allocations--though much of this funding is in fact reallocation of existing federal agency funding--through the Administration's High Performance Computing and Communications (HPCC) Program. But the aspect of the NREN vision reflecting connection ubiquity has not yet received any specific appropriations to support a federal role in connecting those non-traditionally federally funded institutions. I am not aware of any appropriations for new connectivity under consideration; and I would suspect that the immediate prospects for such appropriations are poor.

I believe that public libraries, state and local governments, K-12 schools, and community colleges will have to find the resources to connect to the Internet primarily from their existing funding sources.

Conclusion: the Challenge of the Internet

Currently, there are three primary applications for the Internet. The first is the exchange of electronic mail. The second is the movement of electronic files from one place to another. The third

is access to various machines ranging from supercomputers to online library catalogs. Information resources on the network--many of them public access--are proliferating. There are about 300 library catalogs, mostly at major university libraries around the world, accessible through the Internet. Currently, the typical mode of access is remote sign-on to these resources, and users have to learn the specific local interface for each resource. However, there is a great deal of work underway in technologies and standards that will enable the development of new, distributed information access applications to provide users with much greater commonality of interface and ease of navigation among the growing number of resources. Federal government information is also starting to appear on the Internet in significant quantities, even in the absence of any overall legislation or policy, as a result of individual agency initiatives. Commercial information providers, such as Dialog or Mead Data Central are also starting to appear on the Internet in growing numbers.

Public institutions of all types are facing ever more constrained budgets. Certainly this is true of state and local government agencies, public libraries, community colleges, K-12 education, and museums. Policy-makers for these institutions must decide what priority to assign to connecting to the Internet in competing for these scarce funds. This decision will be driven by the applications and services that are available on the Internet and the extent to which the availability of these services and applications can improve the organization's ability to fulfill its mission. I suggest that the benefits of using the Internet are not yet entirely clear for some classes of institutions, although the potentials are compelling. Some projects--for example, in Davis, California--have experimented with connecting high schools to the Internet. Most Internet use by high school students has been electronic mail exchanged with students around the country and the world and access of online library catalogs. (The University of California has a campus in Davis, so high school students could actually get real access to the located material. But in general, I believe that libraries considering making many catalogs available to their patrons through the Internet must address the problems involved in actually obtaining--through interlibrary loan or other mechanisms--the material patrons locate. There is a potentially serious service impact here.) Much creative thinking will be needed to find ways to incorporate the potential of the Internet and the information resources available on it into the K-12 curriculum.

Many of the most interesting potential applications require a large critical mass of connectivity. For example, if a significant part of the citizenry in a state or region is connected to the network, then the network can become a vital conduit for the distribution of all types of government information (e.g., job listings, community information, records, public service information, and emergency announcements). Guidance counselors at high schools could obtain information about college programs in the state across the network, as well as admission applications. Transcripts could be moved electronically between institutions. Public libraries could share resources such as catalogs or transmit interlibrary loan requests. They could also provide patrons access to various information sources on the Internet.

But all such applications of the Internet require careful planning, evaluation, and analysis. Most importantly, they need to be coordinated with overall strategies for information technology and information management. Staff may require training or retraining; new expertise will be required. In many cases, a sizable local investment in information technology (workstations and local area networks and training in how to use them) will be needed to complement an Internet connection if that connection is to be exploited effectively. Methods of creating and managing information such as public records may need to be reviewed and updated to make such information accessible on the network. The network is but one tool--though admittedly a very powerful and central one, and one that engages the imagination--in the overall adoption of information technology into our institutions.

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NETWORK PLANNING PAPERS

(Continued from Front Cover)

- No. 10 *The Information Economy in the U.S.: Its Effect on Libraries and Library Networks*; Proceedings of the Library of Congress Network Advisory Committee Meeting, November 14-16, 1984. (Washington: Library of Congress, 1985). 59 p. $7.50.

- No. 9 *Information Delivery Systems*: Proceedings of the Library of Congress Network Advisory Committee Meeting, April 18-20, 1984. (Washington: Library of Congress, 1984). 79 p. $6.00.

- No. 8 *Public/Private Sector Interactions: The Implications for Networking*. (Washington: Library of Congress, 1983). 48 p. $5.00.

- No. 7 *Document Delivery--Background Papers Commissioned by the Network Advisory Committee*. (Washington: Library of Congress, 1982). various pagings. $5.00.

- No. 6 Vondran, Raymond F. *National Union Catalog Experience: Implications for Network Planning*. (Washington: Library of Congress, 1980). 51 p. $4.00.

- No. 5. Long, Philip L. *Study of Message Text Formats: Bibliographic Search Queries*. (Washington: Library of Congress, 1979). 28 p. $4.00.

- No. 4 Network Technical Architecture Group. *Message Delivery System for the National Library and Information Service Network: General Requirements*. (Washington: Library of Congress, 1978). 35 p. $4.00.

- No. 3 Buchinski, Edwin J *[illegible] Considerations for a Nationwide Data Base*. (Washington: Library of Congress, 1978). 56 p. $4.00.

- No. 2 Dataflow Systems. *A Glossary for Library Networking*. (Washington: Library of Congress, 1978). 34 p. $4.00.

- No. 1 Butler, Brett. *A Nationwide Location Data Base and Service*. (Washington: Library of Congress, 1978). 66 p. $4.00.

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